Forecasting And Big Data Analysis

March 04-05, 2019, Barcelona, Spain Key Topics: Big Data Analytics ,Big Data Algorithms ,Big Data In Bioinformatics ,Data Mining With Big Data ,Visualization In Big Data ,Big Data In Neural Network For Deep Learning ,High Performance Computing For Big Data ,Machine Learning In Data Science ,Open Science In Big Data ,Hadoop Map-Reduce For Analyzing Information ,Regression In Data Science ,Big Data Applications

This volume constitutes the proceedings of the 8th International Congress on BIGDATA 2019, held as Part of SCF 2019 in San Diego, CA, USA in June 2019. The 9 full papers presented in this volume were carefully reviewed and selected from 14 submissions. They cover topics such as: Big Data Models and Algorithms; Big Data Architectures; Big Data Management; Big Data Protection, Integrity and Privacy; Security Applications of Big Data; Big Data Search and Mining; Big Data for Enterprise, Government and Society.

Gain a broad foundation of advanced data analytics concepts and discover the recent revolution in databases such as Neo4j, Elasticsearch, and MongoDB. This book discusses how to implement ETL techniques including topical crawling, which is applied in domains such as high-frequency algorithmic trading and goal-oriented dialog systems. You'll also see examples of machine learning concepts such as semi-supervised learning, deep learning, and NLP. Advanced Data Analytics Using Python also covers important traditional data analysis techniques such as time series and principal component analysis. After reading this book you will have experience of every technical aspect of an analytics project. You'll get to know the concepts using Python code, giving you samples to use in your own projects. What You Will Learn Work with data analysis techniques such as classification, clustering, regression, and forecasting Handle structured and unstructured data, ETL techniques, and different kinds of databases such as Neo4j, Elasticsearch, MongoDB, and MySQL Examine the different big data frameworks, including Hadoop and Spark Discover advanced machine learning concepts such as semi-supervised learning, deep learning, and NLP Who This Book Is For Data scientists and software developers interested in the field of data analytics.

This book thoroughly covers the remote sensing visualization and analysis techniques based on computational imaging and vision in Earth science. Remote sensing is considered a significant information source for monitoring and mapping natural and man-made land through the development of sensor resolutions that committed different Earth observation platforms. The book includes related topics for the different systems, models, and approaches used in the visualization of remote sensing images. It offers flexible and sophisticated solutions for removing uncertainty from the satellite data. It introduces real time big data analytics to derive intelligence systems in enterprise earth science applications. Furthermore, the book integrates statistical concepts with computer-based geographic information systems (GIS). It focuses on image processing techniques for observing data together with uncertainty information raised by spectral, spatial, and positional accuracy of GPS data. The book addresses several advanced improvement models to guide the engineers in developing different remote sensing visualization and analysis schemes. Highlights on the advanced improvement models of the supervised/unsupervised classification algorithms, support vector machines, artificial neural networks, fuzzy logic, decision-making algorithms, and Time Series Model and Forecasting are addressed. This book guides engineers, designers, and researchers to exploit the intrinsic design remote sensing systems. The book gathers remarkable material from an international experts' panel to guide the readers during the development of earth big data analytics and their challenges.

This book constitutes the refereed conference proceedings of the 5th International Conference on Big Data Analytics, BDA 2017, held in Hyderabad, India, in December 2017. The 21 revised full papers were carefully reviewed and selected from 80 submissions and cover topics on big data analytics, information and knowledge management, mining of massive datasets, computational modeling, data mining and analysis.

As technology continues to revolutionise today's economy, Big Data, Blockchain and Cryptocurrency are rapidly transforming themselves into mainstream functions within the financial services industry. This book examines each concept individually, analysing the opportunities and challenges they bring and exploring the potential for future development. The authors further evaluate the fusion of these three important products of the FinTech revolution, illustrating their combined influence on the digital economy. Providing a comprehensive analysis of three innovative technologies, this timely book will appeal to scholars researching innovation in the finance industry and financial services technology more specifically.

This edited book provides techniques which address various aspects of big data collection and analysis from social media platforms and beyond. It covers efficient compression of large networks, link prediction in hashtag graphs, visual exploration of social media data, identifying motifs in multivariate data, social media surveillance to enhance search and rescue missions, recommenders for collaborative filtering and safe travel plans to high risk destinations, analysis of cyber influence campaigns on YouTube, impact of location on business rating, bibliographical and co-authorship network analysis, and blog data analytics. All these trending topics form a major part of the state of the art in social media and big data analytics. Thus, this edited book may be considered as a valuable source for readers interested in grasping some of the most recent advancements in this high trending domain.

The biggest technological challenge in Big Data is to provide a mechanism for storage, manipulation, and retrieval of information on large amounts of data. In this context, the healthcare industry is also being challenged with the difficulties of capturing data, storing data, analysis of data and data visualization. Due to the rapid growth of large volume of information generated on a daily basis, the use of existing healthcare infrastructure has become impracticable to handle this issue. So, it is essential to develop better intelligent techniques, skills and tools to deal with the patient data and its inherent insights automatically. Intelligent healthcare management technologies can play an effective role to tackle this challenge and change the future for improving our lives. Therefore, there is increasing interest in exploring and unlocking the value of the massively available data within the healthcare domain. Healthcare organizations also need to continuously discover useful and actionable knowledge and gain insight from raw data for various purposes such as saving lives, reducing medical errors, increasing efficiency, reducing costs and improving patient outcomes dynamically. Data analytics in intelligent healthcare management brings great challenge and also playing an important role in intelligent healthcare management system. Big Data Analytics for Intelligent Healthcare Management covers both the theory and application of hardware platforms and architectures, development of software methods, techniques and tools, applications and governance and adoption strategies for the use of big data in healthcare and clinical research. The book provides the latest research findings on the use of big data analytics with statistical and machine learning techniques to analyze huge amounts of real-time healthcare data. High dimensional data with multi-objective problems in healthcare is the primary open issue in big data, and this issue is covered extensively by the editors of this book. Heterogeneous healthcare data in various forms such as text, images, and video, and other detailed clinical data are required to be effectively stored, processed, and analyzed to avoid the increasing cost of health care and medical errors. Big Data Analytics for Intelligent Healthcare Management provides readers with insights into the design of intelligent healthcare systems to manage the rapid growth of high-dimensional real-time clinical data in an efficient way. Examines the methodology and requirements for development of big data architecture, big data modeling, big data as a service, big data analytics, big data for business modeling, big data privacy in healthcare, as well as decision and risk analysis Discusses big data applications for intelligent healthcare management such as revenue management and pricing, predictive analytics/forecasting,

big data integration for medical data, algorithms and techniques to speed up the analysis of big medical data, business Intelligence for medical and healthcare data, disease diagnostic predictive models, data models and architectures for healthcare, healthcare data integration Covers development of big data tools such as data, web and text mining, data mining, optimization, machine learning, cloud in big data with Hadoop, big data in IoT, data analytics with machine learning tools, data analytics with optimization techniques, data analytics in enterprise applications, social network analysis in healthcare, big data analytics for smart cities, and data analytics for clinical applications

This book constitutes the refereed proceedings of the 6th International Conference on Big Data analytics, BDA 2018, held in Warangal, India, in December 2018. The 29 papers presented in this volume were carefully reviewed and selected from 93 submissions. The papers are organized in topical sections named: big data analytics: vision and perspectives; financial data analytics and data streams; web and social media data; big data systems and frameworks; predictive analytics in healthcare and agricultural domains; and machine learning and pattern mining.

The importance of social media as a way to monitor an electoral campaign is well established. Day-by-day, hour-by-hour evaluation of the evolution of online ideas and opinion allows observers and scholars to monitor trends and momentum in public opinion well before traditional polls. However, there are difficulties in recording and analyzing often brief, unverified comments while the unequal age, gender, social and racial representation among social media users can produce inaccurate forecasts of final polls. Reviewing the different techniques employed using social media to nowcast and forecast elections, this book assesses its achievements and limitations while presenting a new technique of "sentiment analysis" to improve upon them. The authors carry out a meta-analysis of the existing literature to show the conditions under which social media-based electoral forecasts prove most accurate while new case studies from France, the United States and Italy demonstrate how much more accurate "sentiment analysis" can prove.

This book has a collection of articles written by Big Data experts to describe some of the cutting-edge methods and applications from their respective areas of interest, and provides the reader with a detailed overview of the field of Big Data Analytics as it is practiced today. The chapters cover technical aspects of key areas that generate and use Big Data such as management and finance; medicine and healthcare; genome, cytome and microbiome; graphs and networks; Internet of Things; Big Data standards; bench-marking of systems; and others. In addition to different applications, key algorithmic approaches such as graph partitioning, clustering and finite mixture modelling of high-dimensional data are also covered. The varied collection of themes in this volume introduces the reader to the richness of the emerging field of Big Data Analytics.

Cloud computing has proven to be a successful paradigm of service-oriented computing, and has revolutionized the way computing infrastructures are abstracted and used. By means of cloud computing technology, massive data can be managed effectively and efficiently to support various aspects of problem solving and decision making. Managing Big Data in Cloud Computing Environments explores the latest advancements in the area of data management and analysis in the cloud. Providing timely, research-based information relating to data storage, sharing, extraction, and indexing in cloud systems, this publication is an ideal reference source for graduate students, IT specialists, researchers, and professionals working in the areas of data and knowledge engineering.

This edited volume is devoted to Big Data Analysis from a Machine Learning standpoint as presented by some of the most eminent researchers in this area. It demonstrates that Big Data Analysis opens up new research problems which were either never considered before, or were only considered within a limited range. In addition to providing methodological discussions on the principles of mining Big Data and the difference between traditional statistical data analysis and newer computing frameworks, this book presents recently developed algorithms affecting such areas as business, financial forecasting, human mobility, the Internet of Things, information networks, bioinformatics, medical systems and life science. It explores, through a number of specific examples, how the study of Big Data Analysis has evolved and how it has started and will most likely continue to affect society. While the benefits brought upon by Big Data Analysis are underlined, the book also discusses some of the warnings that have been issued concerning the potential dangers of Big Data Analysis along with its pitfalls and challenges.

By applying data analytics techniques and machine learning algorithms to predict disease, medical practitioners can more accurately diagnose and treat patients. However, researchers face problems in identifying suitable algorithms for pre-processing, transformations, and the integration of clinical data in a single module, as well as seeking different ways to build and evaluate models. The Handbook of Research on Disease Prediction Through Data Analytics and Machine Learning is a pivotal reference source that explores the application of algorithms to making disease predictions through the identification of symptoms and information retrieval from images such as MRIs, ECGs, EEGs, etc. Highlighting a wide range of topics including clinical decision support systems, biomedical image analysis, and prediction models, this book is ideally designed for clinicians, physicians, programmers, computer engineers, IT specialists, data analysts, hospital administrators, researchers, academicians, and graduate and post-graduate students.

Smart Cities: Big Data Prediction Methods and Applications is the first reference to provide a comprehensive overview of smart cities with the latest big data predicting techniques. This timely book discusses big data forecasting for smart cities. It introduces big data forecasting techniques for the key aspects (e.g., traffic, environment, building energy, green grid, etc.) of smart cities, and explores three key areas that can be improved using big data prediction: grid energy, road traffic networks and environmental health in smart cities. The big data prediction methods proposed in this book are highly significant in terms of the planning, construction, management, control and development of green and smart cities. Including numerous case studies to explain each method and model, this easy-to-understand book appeals to scientists, engineers, college students, postgraduates, teachers and managers from various fields of artificial intelligence, smart cities, smart grid, intelligent traffic systems, intelligent environments and big data computing.

Our newly digital world is generating an almost unimaginable amount of data about all of us. Such a vast amount of data is useless without plans and strategies that are designed to cope with its size and complexity, and which enable organisations to leverage the information to create value. This book is a refreshingly practical, yet theoretically sound roadmap to leveraging big data and analytics. Creating Value with Big Data Analytics provides a nuanced view of big data development, arguing that big data in itself is not a revolution but an evolution of the increasing availability of data that has been observed in recent times. Building on the authors' extensive academic and practical knowledge, this book aims to provide managers and analysts with strategic directions and practical analytical solutions on how to create value from existing and new big data. By tying data and analytics to specific goals and processes for implementation, this is a much-needed book that will be essential reading for students and specialists of data analytics, marketing research, and customer relationship management.

Leverage the capabilities of SAS to process and analyze Big Data About This Book Combine SAS with platforms such as Hadoop, SAP HANA, and Cloud Foundry-based platforms for effecient Big Data analytics Learn how to use the web browser-based SAS Studio and iPython Jupyter Notebook interfaces with SAS Practical, real-world examples on predictive modeling, forecasting, optimizing and reporting your Big Data analysis with SAS Who This Book Is For SAS professionals and data analysts who wish to perform analytics on Big Data using SAS to gain actionable insights will find this book to be very useful. If you are a data science professional looking to perform large-scale analytics with SAS, this book will also help you. A basic

understanding of SAS will be helpful, but is not mandatory. What You Will Learn Configure a free version of SAS in order do hands-on exercises dealing with data management, analysis, and reporting. Understand the basic concepts of the SAS language which consists of the data step (for data preparation) and procedures (or PROCs) for analysis. Make use of the web browser based SAS Studio and iPython Jupyter Notebook interfaces for coding in the SAS, DS2, and FedSQL programming languages. Understand how the DS2 programming language plays an important role in Big Data preparation and analysis using SAS Integrate and work efficiently with Big Data platforms like Hadoop, SAP HANA, and cloud foundry based systems. In Detail SAS has been recognized by Money Magazine and Payscale as one of the top business skills to learn in order to advance one's career. Through innovative data management, analytics, and business intelligence software and services, SAS helps customers solve their business problems by allowing them to make better decisions faster. This book introduces the reader to the SAS and how they can use SAS to perform efficient analysis on any size data, including Big Data. The reader will learn how to prepare data for analysis, perform predictive, forecasting, and optimization analysis and then deploy or report on the results of these analyses. While performing the coding examples within this book the reader will learn how to use the web browser based SAS Studio and iPython Jupyter Notebook interfaces for working with SAS. Finally, the reader will learn how SAS's architecture is engineered and designed to scale up and/or out and be combined with the open source offerings such as Hadoop, Python, and R. By the end of this book, you will be able to clearly understand how you can efficiently analyze Big Data using SAS. Style and approach The book starts off by introducing the reader to SAS and the SAS programming language which provides data management, analytical, and reporting capabilities. Most chapters include hands on examples which highlights how SAS provides The Power to Know©. The reader will learn that if they are looking to perform large-scale data analysis that SAS provides an open platform engineered and designed to scale both up and out which allows the power of SAS to combine with open source offerings such as Hadoop, Python, and R.

Quickly create financial forecasts using big data, predictive analytics, and Microsoft Excel.

The use of data collectors in energy systems is growing more and more. For example, smart sensors are now widely used in energy production and energy consumption systems. This implies that huge amounts of data are generated and need to be analyzed in order to extract useful insights from them. Such big data give rise to a number of opportunities and challenges for informed decision making. In recent years, researchers have been working very actively in order to come up with effective and powerful techniques in order to deal with the huge amount of data available. Such approaches can be used in the context of energy production and consumption considering the amount of data produced by all samples and measurements, as well as including many additional features. With them, automated machine learning methods for extracting relevant patterns, high-performance computing, or data visualization are being successfully applied to energy demand forecasting.

This series of books collects a diverse array of work that provides the reader with theoretical and applied information on data analysis methods, models, and techniques, along with appropriate applications. Volume 1 begins with an introductory chapter by Gilbert Saporta, a leading expert in the field, who summarizes the developments in data analysis over the last 50 years. The book is then divided into three parts: Part 1 presents clustering and regression cases; Part 2 examines grouping and decomposition, GARCH and threshold models, structural equations, and SME modeling; and Part 3 presents symbolic data analysis, time series and multiple choice models, modeling in demography, and data mining.

Use big data to forecast economic trends. Find out how to perform regression analysis for economic forecasting using Microsoft Excel.

"The chapters in this volume offer useful case studies, technical roadmaps, lessons learned, and a few prescriptions to ‘do this, avoid that.’" —From the Foreword by Joe LaCugna, Ph.D., Enterprise Analytics and Business Intelligence, Starbucks Coffee Company With the growing barrage of "big data," it becomes vitally important for organizations to make sense of this data and information in a timely and effective way. That’s where analytics come into play. Research shows that organizations that use business analytics to guide their decision making are more productive and experience higher returns on equity. Big Data and Business Analytics helps you quickly grasp the trends and techniques of big data and business analytics to make your organization more competitive. Packed with case studies, this book assembles insights from some of the leading experts and organizations worldwide. Spanning industry, government, not-for-profit organizations, and academia, they share valuable perspectives on big data domains such as cybersecurity, marketing, emergency management, healthcare, finance, and transportation. Understand the trends, potential, and challenges associated with big data and business analytics Get an overview of machine learning, advanced statistical techniques, and other predictive analytics that can help you solve big data issues Learn from VPs of Big Data/Insights & Analytics via case studies of Fortune 100 companies, government agencies, universities, and not-for-profits Big data problems are complex. This book shows you how to go from being data-rich to insight-rich, improving your decision making and creating competitive advantage. Author Jay Liebowitz recently had an article published in The World Financial Review. www.worldfinancialreview.com/?p=1904

Whether you are a novice investor or an experienced practitioner, Quantitative Investment Analysis, 4th Edition has something for you. Part of the CFA Institute Investment Series, this authoritative guide is relevant the world over and will facilitate your mastery of quantitative methods and their application in today’s investment process. This updated edition provides all the statistical tools and latest information you need to be a confident and knowledgeable investor. This edition expands coverage to Machine Learning algorithms and the role of Big Data in an investment context along with capstone chapters in applying these techniques to factor modeling, risk management and backtesting and simulation in investment strategies. The authors go to great lengths to ensure an even treatment of subject matter, consistency of mathematical notation, and continuity of topic coverage that is critical to the learning process. Well suited for motivated individuals who learn on their own, as well as general reference, this complete resource delivers clear, example-driven coverage of a wide range of quantitative methods. Inside you’ll find: Learning outcome statements (LOS) specifying the objective of each chapter A diverse variety of investment-oriented examples both aligned with the LOS and reflecting the realities of today’s investment world A wealth of practice problems, charts, tables, and graphs to clarify and reinforce the concepts and tools of quantitative investment management Sharpen your skills by furthering your hands-on experience in the Quantitative Investment Analysis Workbook, 4th Edition—an essential guide containing learning outcomes and summary overview sections, along with challenging problems and solutions.

The fast and easy way to make sense of statistics for big data Does the subject of data analysis make you dizzy? You've come to the right place! Statistics For Big Data For Dummies breaks

this often-overwhelming subject down into easily digestible parts, offering new and aspiring data analysts the foundation they need to be successful in the field. Inside, you'll find an easy-to-follow introduction to exploratory data analysis, the lowdown on collecting, cleaning, and organizing data, everything you need to know about interpreting data using common software and programming languages, plain-English explanations of how to make sense of data in the real world, and much more. Data has never been easier to come by, and the tools students and professionals need to enter the world of big data are based on applied statistics. While the word "statistics" alone can evoke feelings of anxiety in even the most confident student or professional, it doesn't have to. Written in the familiar and friendly tone that has defined the For Dummies brand for more than twenty years, Statistics For Big Data For Dummies takes the intimidation out of the subject, offering clear explanations and tons of step-by-step instruction to help you make sense of data mining—without losing your cool. Helps you to identify valid, useful, and understandable patterns in data Provides guidance on extracting previously unknown information from large databases Shows you how to discover patterns available in big data Gives you access to the latest tools and techniques for working in big data If you're a student enrolled in a related Applied Statistics course or a professional looking to expand your skillset, Statistics For Big Data For Dummies gives you access to everything you need to succeed.

This book includes research articles and expository papers on the applications of artificial intelligence and big data analytics to battle the pandemic. In the context of COVID-19, this book focuses on how big data analytic and artificial intelligence help fight COVID-19. The book is divided into four parts. The first part discusses the forecasting and visualization of the COVID-19 data. The second part describes applications of artificial intelligence in the COVID-19 diagnosis of chest X-Ray imaging. The third part discusses the insights of artificial intelligence to stop spread of COVID-19, while the last part presents deep learning and big data analytics which help fight the COVID-19.

By implementing a comprehensive data analytics program, utility companies can meet the continually evolving challenges of modern grids that are operationally efficient, while reconciling the demands of greenhouse gas legislation and establishing a meaningful return on investment from smart grid deployments. Readable and accessible, Big Data Analytics Strategies for the Smart Grid addresses the needs of applying big data technologies and approaches, including Big Data cybersecurity, to the critical infrastructure that makes up the electrical utility grid. It supplies industry stakeholders with an in-depth understanding of the engineering, business, and customer domains within the power delivery market. The book explores the unique needs of electrical utility grids, including operational technology, IT, storage, processing, and how to transform grid assets for the benefit of both the utility business and energy consumers. It not only provides specific examples that illustrate how analytics work and how they are best applied, but also describes how to avoid potential problems and pitfalls. Discussing security and data privacy, it explores the role of the utility in protecting their customers’ right to privacy while still engaging in forward-looking business practices. The book includes discussions of: SAS for asset management tools The AutoGrid approach to commercial analytics Space-Time Insight’s work at the California ISO (CAISO) This book is an ideal resource for mid- to upper-level utility executives who need to understand the business value of smart grid data analytics. It explains critical concepts in a manner that will better position executives to make the right decisions about building their analytics programs. At the same time, the book provides sufficient technical depth that it is useful for data analytics professionals who need to better understand the nuances of the engineering and business challenges unique to the utilities industry.

The proper understanding and managing of project risks and uncertainties is crucial to any organization. It is paramount that all phases of project development and execution are monitored to avoid poor project results from meager economics, overspending, and reputation. Supply Chain Management Strategies and Risk Assessment in Retail Environments is a comprehensive reference source for the latest scholarly material on effectively managing risk factors and implementing the latest supply management strategies in retail environments. Featuring coverage on relevant topics such as omni-channel retail, green supply chain, and customer loyalty, this book is geared toward academicians, researchers, and students seeking current research on the challenges and opportunities available in the realm of retail and the flow of materials, information, and finances between companies and consumers.

The work presented in this book is a combination of theoretical advancements of big data analysis, cloud computing, and their potential applications in scientific computing. The theoretical advancements are supported with illustrative examples and its applications in handling real life problems. The applications are mostly undertaken from real life situations. The book discusses major issues pertaining to big data analysis using computational intelligence techniques and some issues of cloud computing. An elaborate bibliography is provided at the end of each chapter. The material in this book includes concepts, figures, graphs, and tables to guide researchers in the area of big data analysis and cloud computing.

This volume constitutes the proceedings of the 7th International Conference on BIGDATA 2018, held as Part of SCF 2018 in Seattle, WA, USA in June 2018. The 22 full papers together with 10 short papers published in this volume were carefully reviewed and selected from 97 submissions. They are organized in topical sections such as Data analysis, data as a service, services computing, data conversion, data storage, data centers, dataflow architectures, data compression, data exchange, data modeling, databases, and data management.

The recent pursuits emerging in the realm of big data processing, interpretation, collection and organization have emerged in numerous sectors including business, industry and government organizations. Data sets such as customer transactions for a mega-retailer, weather monitoring, intelligence gathering, quickly outpace the capacities of traditional techniques and tools of data analysis. The 3V (volume, variability and velocity) challenges led to the emergence of new techniques and tools in data visualization, acquisition, and

serialization. Soft Computing being regarded as a plethora of technologies of fuzzy sets (or Granular Computing), neurocomputing and evolutionary optimization brings forward a number of unique features that might be instrumental to the development of concepts and algorithms to deal with big data. This carefully edited volume provides the reader with an updated, in-depth material on the emerging principles, conceptual underpinnings, algorithms and practice of Computational Intelligence in the realization of concepts and implementation of big data architectures, analysis, and interpretation as well as data analytics. The book is aimed at a broad audience of researchers and practitioners including those active in various disciplines in which big data, their analysis and optimization are of genuine relevance. One focal point is the systematic exposure of the concepts, design methodology, and detailed algorithms. In general, the volume adheres to the top-down strategy starting with the concepts and motivation and then proceeding with the detailed design that materializes in specific algorithms and representative applications. The material is self-contained and provides the reader with all necessary prerequisites and augments some parts with a step-by-step explanation of more advanced concepts supported by a significant amount of illustrative numeric material and some application scenarios to motivate the reader and make some abstract concepts more tangible.

This book provides detailed descriptions of big data solutions for activity detection and forecasting of very large numbers of moving entities spread across large geographical areas. It presents state-of-the-art methods for processing, managing, detecting and predicting trajectories and important events related to moving entities, together with advanced visual analytics methods, over multiple heterogeneous, voluminous, fluctuating and noisy data streams from moving entities, correlating them with data from archived data sources expressing e.g. entities' characteristics, geographical information, mobility patterns, mobility regulations and intentional data. The book is divided into six parts: Part I discusses the motivation and background of mobility forecasting supported by trajectory-oriented analytics, and includes specific problems and challenges in the aviation (air-traffic management) and the maritime domains. Part II focuses on big data quality assessment and processing, and presents novel technologies suitable for mobility analytics components. Next, Part III describes solutions toward processing and managing big spatio-temporal data, particularly enriching data streams and integrating streamed and archival data to provide coherent views of mobility, and storing of integrated mobility data in large distributed knowledge graphs for efficient query-answering. Part IV focuses on mobility analytics methods exploiting (online) processed, synopsized and enriched data streams as well as (offline) integrated, archived mobility data, and highlights future location and trajectory prediction methods, distinguishing between short-term and more challenging long-term predictions. Part V examines how methods addressing data management, data processing and mobility analytics are integrated in big data architectures with distinctive characteristics compared to other known big data paradigmatic architectures. Lastly, Part VI covers important ethical issues that research on mobility analytics should address. Providing novel approaches and methodologies related to mobility detection and forecasting needs based on big data exploration, processing, storage, and analysis, this book will appeal to computer scientists and stakeholders in various application domains.

This book is intended to present the state of the art in research on machine learning and big data analytics. The accepted chapters covered many themes including artificial intelligence and data mining applications, machine learning and applications, deep learning technology for big data analytics, and modeling, simulation, and security with big data. It is a valuable resource for researchers in the area of big data analytics and its applications.

This book surveys big data tools used in macroeconomic forecasting and addresses related econometric issues, including how to capture dynamic relationships among variables; how to select parsimonious models; how to deal with model uncertainty, instability, non-stationarity, and mixed frequency data; and how to evaluate forecasts, among others. Each chapter is self-contained with references, and provides solid background information, while also reviewing the latest advances in the field. Accordingly, the book offers a valuable resource for researchers, professional forecasters, and students of quantitative economics.

A practical guide to obtaining, transforming, exploring, and analyzing data using Python, MongoDB, and Apache Spark About This Book Learn to use various data analysis tools and algorithms to classify, cluster, visualize, simulate, and forecast your data Apply Machine Learning algorithms to different kinds of data such as social networks, time series, and images A hands-on guide to understanding the nature of data and how to turn it into insight Who This Book Is For This book is for developers who want to implement data analysis and data-driven algorithms in a practical way. It is also suitable for those without a background in data analysis or data processing. Basic knowledge of Python programming, statistics, and linear algebra is assumed. What You Will Learn Acquire, format, and visualize your data Build an image-similarity search engine Generate meaningful visualizations anyone can understand Get started with analyzing social network graphs Find out how to implement sentiment text analysis Install data analysis tools such as Pandas, MongoDB, and Apache Spark Get to grips with Apache Spark Implement machine learning algorithms such as classification or forecasting In Detail Beyond buzzwords like Big Data or Data Science, there are a great opportunities to innovate in many businesses using data analysis to get data-driven products. Data analysis involves asking many questions about data in order to discover insights and generate value for a product or a service. This book explains the basic data algorithms without the theoretical jargon, and you'll get hands-on turning data into insights using machine learning techniques. We will perform data-driven innovation processing for several types of data such as text, Images, social network graphs, documents, and time series, showing you how to implement large data processing with MongoDB and Apache Spark. Style and approach This is a hands-on guide to data analysis and data processing. The concrete examples are explained with simple code and accessible data.

This book presents on the latest research findings, and innovative research methods and development techniques related to the emerging areas of broadband and wireless computing from both theoretical and practical perspectives. Information networking is evolving rapidly with various kinds of networks with different characteristics emerging and being integrated into heterogeneous networks. As a result, a number of interconnection problems can occur at different levels of the communicating entities and communication networks' hardware and software design. These networks need to manage an increasing usage demand, provide support for a significant number of services, guarantee their QoS, and optimize the network resources. The success of all-IP networking and wireless technology has changed the way of life for people around the world, and the advances in electronic integration and wireless communications will pave the way for access to the wireless networks on the fly. This in turn means that all

electronic devices will be able to exchange the information with each other in a ubiquitous way whenever necessary.
Financial Forecasting with Big Data
This book gathers a selection of peer-reviewed papers presented at the first Big Data Analytics for Cyber-Physical System in Smart City (BDCPS 2019) conference, held in Shengyang, China, on 28–29 December 2019. The contributions, prepared by an international team of scientists and engineers, cover the latest advances made in the field of machine learning, and big data analytics methods and approaches for the data-driven co-design of communication, computing, and control for smart cities. Given its scope, it offers a valuable resource for all researchers and professionals interested in big data, smart cities, and cyber-physical systems.
Society is now completely driven by data with many industries relying on data to conduct business or basic functions within the organization. With the efficiencies that big data bring to all institutions, data is continuously being collected and analyzed. However, data sets may be too complex for traditional data-processing, and therefore, different strategies must evolve to solve the issue. The field of big data works as a valuable tool for many different industries. The Research Anthology on Big Data Analytics, Architectures, and Applications is a complete reference source on big data analytics that offers the latest, innovative architectures and frameworks and explores a variety of applications within various industries. Offering an international perspective, the applications discussed within this anthology feature global representation. Covering topics such as advertising curricula, driven supply chain, and smart cities, this research anthology is ideal for data scientists, data analysts, computer engineers, software engineers, technologists, government officials, managers, CEOs, professors, graduate students, researchers, and academicians.