



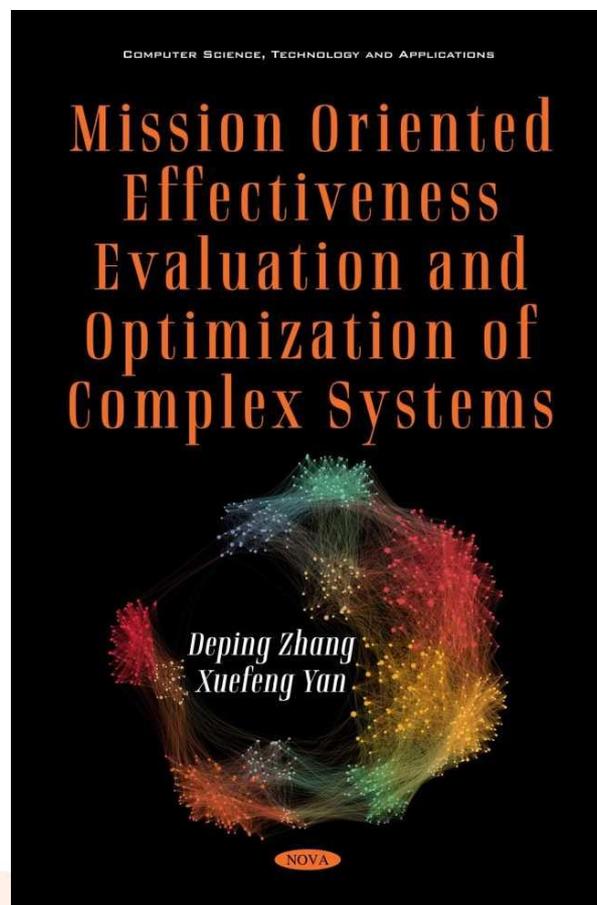
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## COMPUTING & INFORMATION TECHNOLOGY



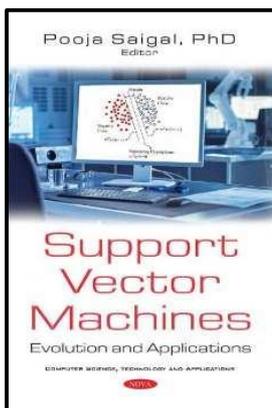
TITLES PUBLISHED BY NOVA SCIENCE

- Computer Science, Technology & Applications
- Ethical Issues in the 21st Century
- Horizons in Computer Science
- Internet of Things & Machine Learning
- Research Methodology & Data Analysis
- Technology in a Globalizing World

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### Computer Science, Technology & Applications



#### Support Vector Machines Evolution and Applications

Edited by Pooja Saigal

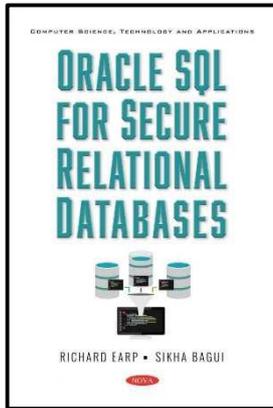
*Support Vector Machines: Evolution and Applications* reviews the basics of Support Vector Machines (SVM), their evolution and applications in diverse fields. SVM is an efficient supervised learning approach popularly used for pattern recognition, medical image classification, face recognition and various other applications. In the last 25 years, a lot of research has been carried out to extend the use of SVM to a variety of domains. This book is an attempt to present the description of a conventional SVM, along with discussion of its different versions and recent application areas.

The first chapter of this book introduces SVM and presents the optimization problems for a conventional SVM. Another chapter discusses the journey of SVM over a period of more than two decades. SVM is proposed as a separating hyperplane classifier that partitions the data belonging to two classes. Later on, various versions of SVM are proposed that obtain two hyperplanes instead of one. A few of these variants of SVM are discussed in this book.

The major part of this book discusses some interesting applications of SVM in areas like quantitative diagnosis of rotor vibration process faults through power spectrum entropy-based SVM, hardware architectures of SVM applied in pattern recognition systems, speaker recognition using SVM, classification of iron ore in mines and simultaneous prediction of the density and viscosity for the ternary system water-ethanol-ethylene glycol ionic liquids.

The latter part of the book is dedicated to various approaches for the extension of SVM and similar classifiers to a multi-category framework, so that they can be used for the classification of data with more than two classes.

HB 9781536187571 £141.99 December 2020 Nova Science Publishers 197 pages

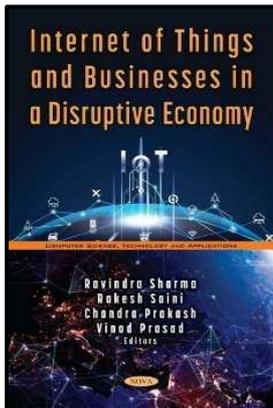


## Oracle SQL for Secure Relational Databases

Richard Earp

A typical Oracle database has multiple users working simultaneously. Data is shared amongst the users, and this of course leads to security concerns. This book comes in from the angle of developing and maintaining a secure Oracle database with multiple users. The book shows how data can be shared in an orderly fashion and what a good secure database is. In this book, we assume that you are acquainted with basic Oracle SQL and fundamentals of relational database.

PB 9781536194364 £84.99 March 2021 Nova Science Publishers 175 pages



## Internet of Things and Businesses in a Disruptive Economy

Edited by Sharma Sharma

The Internet of Things (IoT) opens the door for new business opportunities and helps companies benefit from new revenue streams developed by advanced business models and services. IoT-driven innovations build strong business cases, reduce marketing times and increase returns on investments. IoT has the potential to transform the way consumers and businesses approach the world by leveraging the scope of IoT beyond connectivity.

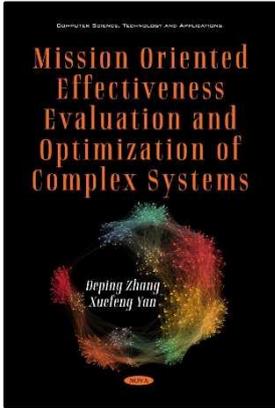
Economies are constantly “falling out” in every industry, but to be truly disruptive, an economy must entirely transform a product or solution that was so complicated historically that only a few affluent people who carry certain skills had access to it. A disruptive economy is often a much simpler, low-grade solution that’s more affordable and accessible to a large percentage of the population, thus opening it to an entirely fresh market. This often upturns established industries and overthrows existing market leaders.

*Internet of Things and Businesses in a Disruptive Economy* provides insight on how the newly emerging IoT will provide unprecedented opportunities to permeate technology and automation into everything we do, while at the same time providing a huge playing field for businesses to develop state-of-the-art business models to capture market shares.

This book covers business domains like human resource management, health care, agriculture, smart cities projects, smart manufacturing, smart education, cloud computing, and IoT securities issues.

Readers will gain a broad understanding of IoT wherever IoT is applicable, as well as the role IoT plays in transforming business processes and ensuring sustainable growth in the disruptive economic environment. Readers will be able to use IoT to tackle real-world problems ranging from those in the manufacturing sector, human resource management, health care, agriculture, surveillances systems, cloud computing and smart cities and various other domains of business.

HB 9781536189582 £203.99 January 2021 Nova Science Publishers 372 pages



## Mission Oriented Effectiveness Evaluation and Optimization of Complex Systems

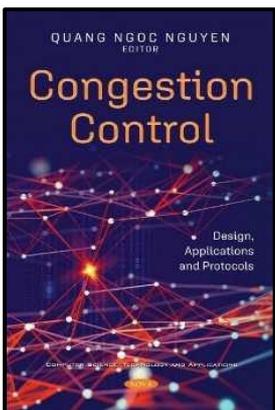
Deping Zhang

With the development and wide application of new information technology, the trend of informationization, intelligence and integration for complex systems is becoming increasingly obvious. Various complex systems promote and restrict each other to form an organic system with a feature of system emergence.

The goal of these complex systems is to accomplish complex tasks in very complicated and uncertain environments and get better results than people expect. System effectiveness is always used to measure the design quality and capacity of complex systems. It represents the comprehensive capability of a complex system to perform specific tasks under specific conditions. To guide the optimization design process, improve design quality, reduce the design lifecycle and ultimately enhance the overall capabilities of complex systems, it is necessary to find a scientific method to evaluate and optimize the system effectiveness of the complex system.

At present, there are many methods to evaluate system effectiveness, but most of the evaluation objects are mainly single equipment or a subsystem. Complex systems have various typical characteristics of large scale, complex relationships, diverse tasks, and typical uncertainties. It is difficult to achieve comprehensive evaluation and it is not effective to use the existing simple methods directly. Because the existing research on comprehensive evaluation of system effectiveness struggles to meet the emergence requirements of complex systems, it is necessary to research and form a comprehensive evaluation and optimization method of system effectiveness for the complex system.

HB 9781536193800 £203.99 May 2021 Nova Science Publishers 339 pages



## Congestion Control

### Design, Applications and Protocols

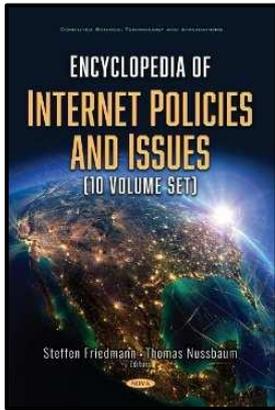
Edited by Ngoc Quang Nguyen

Nowadays, network connectivity and the Internet have been an indispensable part of our daily lives via various services/applications supporting all of the industry areas ranged from trade and business, administration to entertainment, transportation, education, and healthcare. Typically, the concepts and introductions of terms, such as the Internet of Things (IoT), cloud or edge/fog computing, and content-oriented network services, have been investigated as emerging topics toward the realization of the Internet of Everything (IoX) in the future.

Toward this end, developing an efficient congestion control mechanism is regarded as a key to an efficient and robust network design since the network availability and stability can directly affect the network performance, in terms of interoperability and robustness, especially in the case of an explosive increase in the network traffic volume. In particular, when a network link becomes corrupted or overload, congestion may occur due to packet drops. As a result, the overall network performance, including network throughput, latency, and response time will be degraded.

The book is not intended to provide a comprehensive description of various congestion control techniques. Rather, with the assumptions that the readers have some general knowledge of networking fundamentals, the main goal of this book is to bring together distinguished perspectives of congestion control in different network platforms and technologies, ranged from TCP/IP, MPTCP (Multipath TCP) in heterogeneous networks, wireless networks to information-centric networks as future networks, and even supercomputing. The book then aims to give a new insight into this challenging and important topic of congestion control to overcome network performance degradation when congestion occurs from both theory/principles and practical viewpoints. Hence, we hope that this book provides a broader picture of the Congestion control concept in the context of communication networks toward efficient network design.

HB 9781536191493 £172.99 March 2021 Nova Science Publishers 293 pages

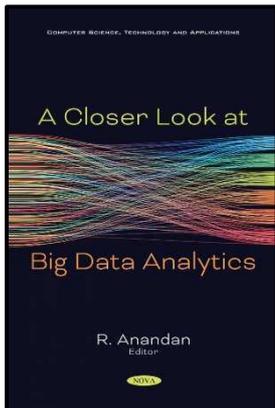


## Encyclopedia of Internet Policies and Issues (10 Volume set)

Edited by Steffen Friedmann

*Encyclopedia of Internet Policies and Issues* organizes researchers from around the world in internet policy and related disciplines and maintains an up-to-date reference work for readers worldwide. Please review the Table of Contents for more in-depth information.

HB 9781536186185 £1,460.99 December 2020 Nova Science Publishers 3195 pages



## A Closer Look at Big Data Analytics

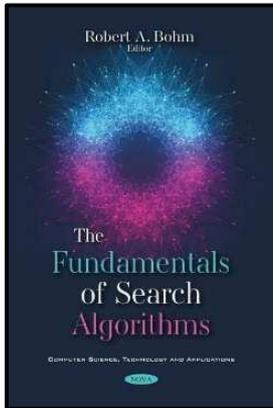
Edited by R. Anandan

Big Data Analytics is a field that dissects, efficiently extricates data from, or in any case manages informational indexes that are excessively huge or complex to be managed by customary information preparing application programming. Information with numerous cases (lines) offers more noteworthy factual force, while information with higher multifaceted nature may prompt a higher bogus disclosure rate. Enormous information challenges incorporate catching information, information stockpiling, information investigation, search, sharing, move, representation, and questioning, refreshing, data security and data source. Large information was initially connected with three key ideas: volume, variety and velocity. Consequently, huge information regularly incorporates information with sizes that surpass the limit of conventional programming to measure inside a satisfactory time and worth.

Current utilization of the term enormous information will in general allude to the utilization of predictive analytics, user behavior analytics, or certain other progressed information investigation techniques that concentrate an incentive from information, and sometimes to a specific size of informational index. There is little uncertainty that the amounts of information now accessible are undoubtedly enormous, however that is not the most important quality of this new information biological system. Investigation of informational indexes can discover new relationships to spot business patterns or models. Researchers, business persons, clinical specialists, promoting and governments consistently meet challenges with huge informational collections in territories including Internet look, fintech, metropolitan informatics, and business informatics. Researchers experience constraints in e-Science work, including meteorology, genomics, connectomics, complex material science reproductions, science and ecological exploration.

The main objective of this book is to write about issues, challenges, opportunities, and solutions in novel research projects about big data in various domains. The topics of interest include, but are not limited to: efficient storage, management and sharing large scale of data; novel approaches for analyzing data using big data technologies; implementation of high performance and/or scalable and/or real-time computation algorithms for analyzing big data; usage of various data sources like historical data, social networking media, machine data and crowd-sourcing data; using machine learning, visual analytics, data mining, spatio-temporal data analysis and statistical inference in different domains (with large scale datasets); Legal and ethical issues and solutions for using, sharing and publishing large datasets; and the results of data analytics, security and privacy issues.

HB 9781536193336 £203.99 March 2021 Nova Science Publishers 366 pages



## The Fundamentals of Search Algorithms

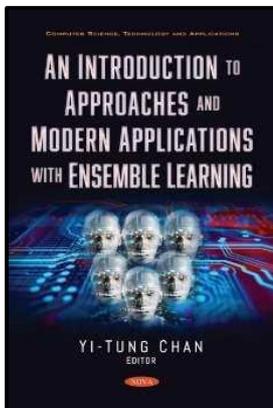
Edited by Robert A. Bohm

Heuristic local search algorithms are used to find “good” solutions to the NP-hard combinatorial optimization problems that cannot be solved using analytical methods. Chapter one discusses the characterization and computation of heuristic local search algorithm for the Traveling Salesman Problem (TSP) from the perspective of dynamical systems.

The purpose of chapter 2 is to show the practical application of CBIR technology in the security and protection of personal data, access to classified documents and objects, identification of illegal attacks that are part of the social life of the present and future of mankind.

Continuous search space problems are difficult problems to solve because the number of solutions is infinite. Moreover, the search space gets more complex as we add constraints to the problem. In this context, chapter 3 aims to show the usage of the differential evolution algorithm for solving continuous search space problems using unconstrained functions and a constrained real-world problem.

PB 9781536190076 £72.99 February 2021 Nova Science Publishers 101 pages

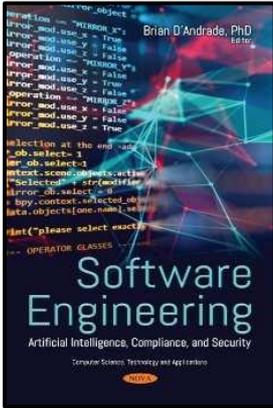


## An Introduction to Approaches and Modern Applications with Ensemble Learning

Edited by Yi-Tung Chan

From the successful application of deep learning (DL) in AlphaGo in 2012 to the recent advances in edge computing, artificial intelligence (AI) has continued to develop over the years. In the face of the current sweeping trend of AI, ensemble learning (EL) is expected to be further applied to DL and AI for developing higher-level ensemble systems in the future. Moreover, it could become an important step for achieving “The Master Algorithm” proposed by Prof. Pedro Domingos. In light of this, EL will continue to make a significant contribution to future development. The purpose of this book is to provide insights into EL for readers not majoring in computer science or related subjects, introduce the latest development and applications of EL; in particular, share its practical applications in various fields. Accordingly, this book intends to present theoretical parts relating to mathematics and computing in a simple and concise manner. The examples and practical use of EL have been used to explain methods that utilize EL to solve readers’ issues in their fields, which demonstrates the essence of EL for practical applications. While many AI and ML books are available on the market, most require a certain level of mathematical and machine learning (ML) knowledge. Complicated theories of mathematics and computation may be intimidating for people without a background in computer science and engineering, such as biological and medical researchers. It would be unfortunate if they were to miss the opportunity to use EL as a practical tool to solve data analysis problems at hand. Moreover, EL is usually introduced in the later or advanced chapters of AI and ML books. Beginners in ML, or readers without a technical background, are likely to be frustrated by mathematical or technical terms that only appear occasionally in the book or be anxious about complicated mathematical and computational theories related to classification algorithms. It would be regrettable if they were intimidated, and therefore, missed the opportunity to learn and use EL. From a practical perspective, existing classification techniques, such as decision trees with the C4.5 algorithm, support vector machines, and neural networks are now relatively mature and have been proven to be effective. For readers without a technical background, it is not essential to understand the complicated mathematical and computational theories behind the above techniques. Instead, it is recommended to grasp the logic and meaning of parameters in these classification algorithms and directly conduct tests using EL. Learning through practice can help readers to establish computational thinking. It is the best approach to learning EL, ML, AI, and DL.

HB 9781536186802 £203.99 November 2020 Nova Science Publishers 316 pages



## Software Engineering Artificial Intelligence, Compliance, and Security

Edited by Brian D'Andrade

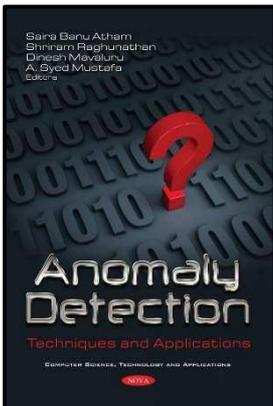
Information security is important in every aspect of daily life. This book examines four areas where risks are present: artificial intelligence (AI), the internet of things (IoT), government and malware. The authors channel their experience and research into an accessible body of knowledge for consideration by professionals.

AI is introduced as a tool for healthcare, security and innovation. The advantages of using AI in new industries are highlighted in the context of recent developments in mechanical engineering, and a survey of AI software risks is presented focusing on well-publicized failures and US FDA regulatory guidelines.

The risks associated with the billions of devices that form the IoT grow with the availability of such devices in consumer products, healthcare, energy infrastructure and transportation. The risks, software engineering risk mitigation methods and standards promoting a level of care for the manufacture of IoT devices are examined because of their importance for software developers.

Strategic insights for software developers looking to do business with the US federal government are presented, considering threats to both public and private sectors as well as governmental priorities from recent executive and legislative branch actions. Finally, an analysis of malicious software that infects numerous computer systems each day and causes millions of dollars in damages every year is presented. Malicious software, or “malware,” is software designed with hostile intent, but the damage may be mitigated with static and dynamic analyses, which are processes for studying how malware operates and analyzing potential impacts.

HB 9781536189896 £172.99 December 2020 Nova Science Publishers 259 pages



## Anomaly Detection Techniques and Applications

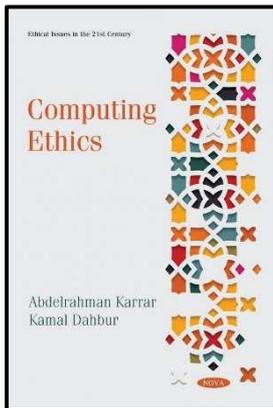
Edited by Saira Banu

When information in the data warehouse is processed, it follows a definite pattern. An unexpected deviation in the data pattern from the usual behavior is called an anomaly. The anomaly in the data is also referred to as noise, outlier, spammer, deviations, novelties and exceptions. Identification of the rare items, events, observations, patterns which raise suspicion by differing significantly from the majority of data is called anomaly detection.

With progress in technology and the widespread use of data for the purpose of business, spam faced by individuals and companies is increasing day by day. This noisy data has boomed as a major problem in various areas such as Internet of Things, web service, machine learning, artificial intelligence, deep learning, image processing, cloud computing, audio processing, video processing, VoIP, data science, wireless sensor, etc. Identifying the anomaly data and filtering them before processing is a major challenge for the data analyst. This anomaly is unavoidable in all areas of research. This book covers the techniques and algorithms for detecting the deviated data. This book will mainly target researchers and higher graduate learners in computer science and data science.

PB 9781536192643 £84.99 March 2021 Nova Science Publishers 177 pages

## Ethical Issues in the 21st Century



### Computing Ethics

Abdelrahman Karrar

Ethics is an important basis for controlling and regulating human behavior in all areas of life, including but not limited to dealing with other people at work. This book covers ethical issues related to the field of information technology and computing, and discusses some of the ethical issues from the perspective of the Arabic and Islamic cultures. The book concentrates on understanding the legal, ethical, and societal issues related to the field of information technology and computing without indulging into the implications of these issues on other fields, such as music or painting copyrights.

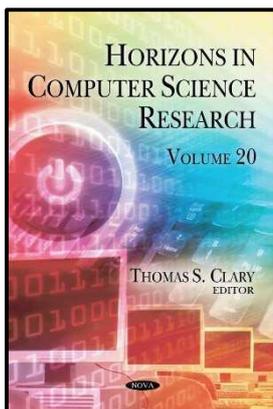
The book is well suited for undergraduate and graduate students in colleges and universities in the Middle East and Islamic world. The book also provides an excellent foundation in ethical, legal and cultural decision-making for current and future professionals, practitioners and managers in the field of computer science and information technology.

The book covers many fundamental and contemporary topics, including:

- Ethical theories, philosophy, responsibility and code of ethics
- History of computing ethics and ethics for the computing professions
- Professional ethics in Islam
- Negative uses of computers and the Internet
- Privacy, anonymity and position of Islam on privacy
- Ethical issues related to software piracy and intellectual property
- Supporting and opposing Islamic views on intellectual copyright
- Ethical Issues related to globalization
- Ethicality of threats and violation to information security
- Hackers, vandals, spyware and network security risks

PB 9781536193787 £84.99 March 2021 Nova Science Publishers 149 pages

## Horizons in Computer Science



### Horizons in Computer Science Research

#### Volume 20

Edited by Thomas S. Clary

This compilation opens with a review of the applications of several anomaly-based methods under the computational intelligence umbrella for the detection of DDoS attacks.

Following this, a study is carried out to reveal the effects of a device developed to enable visually-impaired people to read any document in the Braille alphabet.

The performance of the Artificial Bee Colony (ABC) algorithm on CEC2010 benchmark problems is also studied, with the goal of increasing the performance of the algorithm changes presented in large-scale optimization problems.

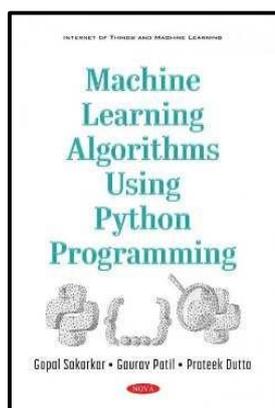
Later, the opportunities and limitations of present waste management techniques are highlighted, and some future research proposals are discussed.

The authors provide an overview of the field of motion capture focusing on methods, systems, and applications. More information about the motion processing and motion reconstruction technologies applied in the most prevalent optical and inertial systems is presented.

In closing, a partially-manual method for using images to measure body poses is presented and discussed.

HB 9781536191035 £221.99 February 2021 Nova Science Publishers 229 pages

## Internet of Things & Machine Learning



### Machine Learning Algorithms Using Python Programming

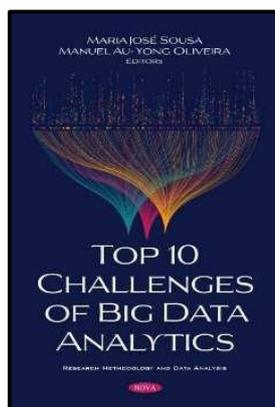
Gopal Sakarkar

The machine learning field is concerned with the question of how to create computer programs that automatically improve information. In recent years, many successful electronic learning applications have been made, from data mining systems that learn to detect fraudulent credit card transactions, filtering programs that learn user readings, to private cars that learn to drive on public highways. At the same time, there have been significant developments in the concepts and algorithms that form the basis for this field. Machine learning is programming computers to optimize a performance criterion using example data or past experience.

The goal of this textbook is to present the key concepts of Machine Learning which includes Python concepts and Interpreter, Foundation of Machine Learning, Data Pre-processing, Supervised Machine Learning, Unsupervised Machine Learning, Reinforcement Learning, Kernel Machine, Design and analysis of Machine Learning experiment and Data visualization. The theoretical concepts along with coding implementation are covered. This book aims to pursue a middle ground between a theoretical textbook and one that focuses on applications. The book concentrates on the important ideas in machine learning.

PB 9781536195125 £84.99 May 2021 Nova Science Publishers 199 pages

## Research Methodology & Data Analysis

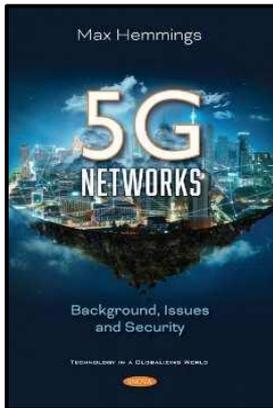


### Top 10 Challenges of Big Data Analytics

Edited by Maria José Sousa

The application of big data analytics in all fields of research is a critical driver for the competitiveness of all countries in the modern world. Currently, governments and industry generate large amounts of data driven by record keeping, compliance, regulations, data privacy, and dynamic requirements, and thus there is a need to create better mechanisms to analyse data, and hence support organizational development, as well as providing aid to policymakers' decision-making processes. In this context, there are emerging disruptive opportunities because of Big Data: new business models, and vertical industry segments will emerge through shared relationships with all the stakeholders, and big data analytics is a major asset to support these dynamic relationships. This book was developed with the objective of analysing some of those challenges while at the same time providing a perspective of the potential of big data analytics, and the importance that analytics have for managers and for policymakers, to help define new strategies and new public policies, respectively. The book is focused on different sectors of activity (i.e. the Health sector, Public Administration, the Education sector, among others), and on different economic dimensions (i.e. Entrepreneurship, and Innovation) and links big data analytics to different fields of research, such as artificial intelligence and other emergent technologies; which are challenging organisations, governments, and societies, with the need to face the new imperative of being prepared for the very uncertain and tremendously complex future - in which big data analytics will play a very decisive and active role.

HB 9781536191332 £141.99 February 2021 Nova Science Publishers 206 pages



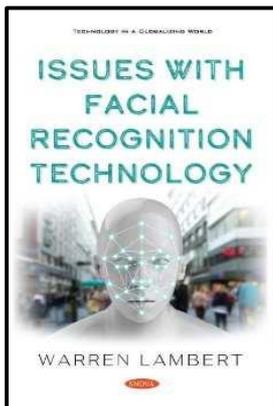
## 5G Networks Background, Issues and Security

Edited by Max Hemmings

Since the first mobile phones were made available in the 1980s, telecommunication providers have been investing in mobile networks to expand coverage, improve services, and attract more users. First-generation networks supported mobile voice calls but were limited in coverage and capacity. To address those limitations, providers developed and deployed second-generation (2G) mobile networks, then third-generation (3G), and fourth-generation (4G) networks. Each generation offered improved speeds, greater capacity, and new features and services.

In 2018, telecommunication providers began deploying fifth-generation (5G) networks to meet growing demands for data from consumer and industrial users. 5G networks are expected to enable providers to expand consumer services (e.g., video streaming, virtual reality applications), support the growing number of connected devices (e.g., medical devices, smart homes, Internet of Things), support new industrial uses (e.g., industrial sensors, industrial monitoring systems), perform advanced data analytics, and enable the use of advanced technologies (e.g., smart city applications, autonomous vehicles). This book provides a background on mobile technologies, and addresses the race to 5G, factors affecting 5G deployment, and national security.

HB 9781536189728 £203.99 December 2020 Nova Science Publishers 417 pages



## Issues with Facial Recognition Technology

Edited by Warren Lambert

Automated facial recognition systems compare two or more images of faces to determine whether they represent the same individual. Facial recognition technology (FRT) falls within the larger categories of biometric technology used to varying degrees by the government and private entities to identify persons. This book deals with some of the issues concerning facial recognition technology.

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