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Handbook of Research on Advanced Trends in Microwave and Communication Engineering - El Oualkadi, Ahmed 2016-08-25

Wireless communications have become invaluable in the modern world. The market is going through a revolutionary transformation as new technologies and standards endeavor to keep up with demand for integrated and low-cost mobile and wireless devices. Due to their ubiquity, there is also a need for a simplification of the design of wireless systems and networks. The Handbook of Research on Advanced Trends in Microwave and Communication Engineering showcases the current trends and approaches in the design and analysis of reconfigurable microwave devices, antennas for wireless applications, and wireless communication technologies. Outlining both theoretical and experimental approaches, this publication brings to light the unique design issues of this emerging research, making it an ideal reference source for engineers, researchers, graduate students, and IT professionals.

Computer and Cyber Security - Brij B. Gupta 2018-11-19

This is a monumental reference for the theory and practice of computer security. Comprehensive in scope, this text covers applied and practical elements, theory, and the reasons for the design of applications and security techniques. It covers both the management and the engineering issues of computer security. It provides excellent examples of ideas and mechanisms that demonstrate how disparate techniques and principles are

combined in widely-used systems. This book is acclaimed for its scope, clear and lucid writing, and its combination of formal and theoretical aspects with real systems, technologies, techniques, and policies.

Encyclopedia of Data Science and Machine Learning - Wang, John 2022-10-14

Big data and machine learning are driving the Fourth Industrial Revolution. With the age of big data upon us, we risk drowning in a flood of digital data. Big data has now become a critical part of both the business world and daily life, as the synthesis and synergy of machine learning and big data has enormous potential. Big data and machine learning are projected to not only maximize citizen wealth, but also promote societal health. As big data continues to evolve and the demand for professionals in the field increases, access to the most current information about the concepts, issues, trends, and technologies in this interdisciplinary area is needed. The Encyclopedia of Data Science and Machine Learning examines current, state-of-the-art research in the areas of data science, machine learning, data mining, and more. It provides an international forum for experts within these fields to advance the knowledge and practice in all facets of big data and machine learning, emphasizing emerging theories, principals, models, processes, and applications to inspire and circulate innovative findings into research, business, and communities. Covering topics such as benefit management, recommendation system analysis, and global software development, this expansive reference provides a dynamic resource for data scientists, data analysts, computer scientists, technical managers, corporate executives, students and educators of higher education, government officials, researchers, and academicians.

Information and Communication Technology for Competitive Strategies - Simon Fong 2018-08-30

This book contains 74 papers presented at ICTCS 2017: Third International Conference on Information and Communication Technology for Competitive Strategies. The conference was held during 16–17 December 2017, Udaipur, India and organized by Association of Computing Machinery, Udaipur Professional Chapter in association with The Institution of Engineers (India), Udaipur Local Center and Global Knowledge Research Foundation. This book contains papers mainly focused on ICT for Computation, Algorithms and Data Analytics and IT Security etc.

COVID-19 Public Health Measures - Nuzhat F. Shaikh 2021-05-04

Considering the overall situation of the current pandemic and pertinent recommendations, this book focuses on the use of augmented reality (AR) applications for preventing COVID-19 outbreaks along with techniques, tools, and platforms to achieve social distancing.and sanitization.

COVID-19 Public Health Measures: An Augmented Reality Perspective contains theoretical and practical knowledge of AR and remedies on how to cope with the pandemic, including multiple use cases along with a set of recommendations. This book illustrates application building using open-source software with an interactive interface to aid impaired users. The initial part of this book emphasizes the basic knowledge of AR, technology, devices, and rest of the relevant theories. This book is aimed at researchers, students of AR, technical healthcare professionals, and practitioners. Key Features: • Consists of an extensive introduction to the terminologies and components of AR • Provides in-depth knowledge of various tools and techniques used in AR • Introduces various platforms and software development kits (SDKs) such as Unity Engine, Unreal Engine, and Vuforia • Gives a step-by-step guide for the development of an AR app • Describes how AR can be used specifically by impaired users not only in the situation of current pandemic but also in normal situations thus simplifying day-to-day activities

Research Advances in the Integration of Big Data and Smart Computing - Mallick, Pradeep Kumar 2015-10-13

The volume, complexity, and irregularity of computational data in modern algorithms and simulations necessitates an unorthodox approach to computing. Understanding the facets and possibilities of soft computing algorithms is necessary for the accurate and timely processing of complex data. Research Advances in the Integration of Big Data and Smart Computing builds on the available literature in the realm of Big Data while providing further research opportunities in this dynamic field. This publication provides the resources necessary for technology developers, scientists, and policymakers to adopt and implement new paradigms in computational methods across the globe. The chapters in this publication advance the body of knowledge on soft computing techniques through topics such as transmission control protocol for mobile ad hoc networks, feature extraction, comparative analysis of filtering techniques, big data in economic policy, and advanced dimensionality reduction methods.

Data Structures - Anuradha A. Puntambekar 2020-12-01

The book has been developed to provide comprehensive and consistent coverage of both the concepts of data structures as well as implementation of these concepts using C programming. The book utilizes a systematic approach wherein each data structure is explained using examples followed by its implementation using a programming language. It begins with the introduction to data types. In this, an overview of various types of data structures is given and asymptotic notations, best case, worst case and average case time complexity is discussed. The book then focuses on the linear data structures such as arrays, stacks, queues and

linked lists. In these units each concept is followed by its implementation and logic explanation part. The book then covers the non-linear data structures such as trees and graphs. These data structures are very well explained with the help of illustrative diagrams, examples and implementations. The text book then covers two important topics - hashing and file structures. While explaining the hashing - various hashing methods, and collision handling techniques are explained with necessary illustrations and examples. File structures are demonstrated by implementing sequential, index sequential and random file organization. Finally searching and sorting algorithms, their implementation and time complexities are discussed. The sorting and searching methods are illustrated systematically with the help of examples. The explanation in this book is in a very simple language along with clear and concise form which will help the students to have clear-cut understanding of the subject.

Electrical Machines – I - Uday A. Bakshi 2020-11-01

The importance of various electrical machines is well known in the various engineering fields. The book provides comprehensive coverage of the magnetic circuits, magnetic materials, single and three phase transformers and d.c. machines. The book is structured to cover the key aspects of the course Electrical Machines - I. The book starts with the explanation of basics of magnetic circuits, concepts of self and mutual inductances and important magnetic materials. Then it explains the fundamentals of single phase transformers including the construction, phasor diagram, equivalent circuit, losses, efficiency, methods of cooling, parallel operation and autotransformer. The chapter on three phase transformer provides the detailed discussion of construction, connections, phasor groups, parallel operation, tap changing transformer and three winding transformer. The various testing methods of transformers are also incorporated in the book. The book further explains the concept of electromechanical energy conversion including the discussion of singly and multiple excited systems. Then the book covers all the details of d.c. generators including construction, armature reaction, commutation, characteristics, parallel operation and applications. The book also includes the details of d.c. motors such as characteristics, types of starters, speed control methods, electric braking and permanent magnet d.c. motors. Finally, the book covers the various testing methods of d.c. machines including Swinburne's test, brake test, retardation test and Hopkinson's test. The book uses plain, lucid language to explain each topic. The book provides the logical method of explaining the various complicated topics and stepwise methods to make the understanding easy. Each chapter is well supported with necessary illustrations, self-explanatory diagrams and variety of solved problems. All the chapters are arranged in a proper sequence that permits

each topic to build upon earlier studies. The book explains the philosophy of the subject which makes the understanding of the concepts very clear and makes the subject more interesting.

VANET - Sonali P. Botkar 2021-03-17

VANET (vehicular ad hoc network) is a subgroup of MANET (mobile ad hoc network). It enables communication among vehicles on the road and between related infrastructures. This book addresses the basic elements of VANET along with components involved in the communication with their functionalities and configurations. It contains numerous examples, case studies, technical descriptions, scenarios, procedures, algorithms, and protocols, and addresses the different services provided by VANET with the help of a scenario showing a network tackling an emergency. Features: • Covers all important concepts of VANET for beginners and different road scenarios in VANET • Covers essential communication protocols in VANET • Introduces approaches for VANET implementation using simulators • Provides a classification of messages and a priority-based message forwarding strategy This book is aimed at undergraduates, postgraduates, industry, researchers, and research scholars in information and communications technology.

Energy Optimization Protocol Design for Sensor Networks in IoT Domains - Sanjeev J. Wagh 2022-08-04

This book provides an essential overview of IoT, energy-efficient topology control protocols, motivation, and challenges for topology control for Wireless Sensor Networks, and the scope of the research in the domain of IoT. Further, it discusses the different design issues of topology control and energy models for IoT applications, different types of simulators with their advantages and disadvantages. It also discusses extensive simulation results and comparative analysis for various algorithms. The key point of this book is to present a solution to minimize energy and extend the lifetime of IoT networks using optimization methods to improve the performance. Features: Describes various facets necessary for energy optimization in IoT domain. Covers all aspects to achieve energy optimization using latest technologies and algorithms, in wireless sensor networks. Presents various IoT and Topology Control Methods and protocols, various network models, and model simulation using MATLAB®. Reviews methods and results of optimization with Simulation Hardware architecture leading to prolonged life of IoT networks. First time introduces bio-inspired algorithms in the IoT domain for performance optimization This book aims at Graduate Students, Researchers in Information Technology, Computer Science and Engineering, Electronics and Communication Engineering.

The Valuation of Digital Intangibles - Roberto Moro Visconti 2020-02-17

This book offers a primer on the valuation of digital intangibles, a trending class of immaterial assets. Startups like successful unicorns, as well as consolidated firms desperately working to re-engineer their business models, are now trying to go digital and to reap higher returns by exploiting new intangibles. This book is innovative in its design and concept since it tackles a frontier topic with an original methodology, combining academic rigor with practical insights. Digital intangibles range from digitized versions of traditional immaterial assets (brands, patents, know-how, etc.) to more trendy applications like big data, Internet of Things, interoperable databases, artificial intelligence, digital newspapers, social networks, blockchains, FinTech applications, etc. This book comprehensively addresses related valuation issues, and demonstrates how best practices can be applied to specific asset appraisals, making it of interest to researchers, students, and practitioners alike.

Engineering Mechanics - Anup Goel 2021-01-01

Engineering mechanics is the branch of the physical science which describes the response of bodies or systems of bodies to external behaviour of a body, in either a beginning state of rest or of motion, subjected to the action of forces. It bridges the gap between physical theory and its application to technology. It is used in many fields of engineering, especially mechanical engineering and civil engineering. Much of engineering mechanics is based on Sir Issac Newton's laws of motion. Within the practical sciences, engineering mechanics is useful in formulating new ideas and theories, discovering and interpreting phenomena and developing experimental and computational tools. Engineering mechanics is the application of applied mechanics to solve problems involving common engineering elements. The goal of this engineering mechanics course is to expose students to problems in mechanics as applied to plausibly real-world scenarios. Problems of particular types are explored in detail in the hopes that students will gain an inductive understanding of the underlying principles at work; students should then be able to recognize problems of this sort in real-world situations and respond accordingly. Our hope is that this book, through its careful explanations of concepts, practical examples and figures bridges the gap between knowledge and proper application of that knowledge.

Internet of Things Integrated Augmented Reality - Gitanjali Rahul Shinde 2020-06-19

This book discusses the use of converged technology, a rapidly growing area that enhancements smart devices, communication, Internet of things (IoT), and augmented reality (AR). The book also explores the need for convergence of IoT and AR for various purposes, like personalized services, context awareness, and bridging the gap between the physical

and digital world. Furthermore, it examines the implementation of IoT and AR in use cases to define pathways that allow application developers to design modern solutions to satisfy requirements like scalability, abstraction and security. Featuring an introduction, and covering sensing techniques, and effective architecture in AR-based IoT real-time use cases, the book also addresses the issues and challenges in designing standard architecture and middleware to support diverse applications. Given its scope, it is a valuable resource for teachers and students in engineering, as well as researchers, developers, and users working in multi-disciplinary areas.

Kinematics of Machinery - Anup Goel 2021-01-01

Kinematics of Machinery is the branch of engineering science which deals with the study of relative motion between the various parts of a machine and the forces which act on them. It gives information about the basic concepts and layout of linkages in the assembly of a system or a machine. The subject provides information about the principles in analysing the assembly with respect to the displacement, velocity and acceleration at any point in a link of a mechanism. This book gives technique to find velocity and acceleration of different mechanisms by graphical and analytical methods. It also includes the basic concepts of toothed gearing and kinematics of gear trains and the effect of friction in motion transmission and in machine components. My hope is that this book, through its careful explanations of concepts, practical examples and figures bridges the gap between knowledge and proper application of that knowledge.

Foundations of Mathematical Modelling for Engineering Problem Solving - Parikshit Narendra Mahalle 2023-01-10

This book aims at improving the mathematical modelling skills of users by enhancing the ability to understand, connect, apply and use the mathematical concepts to the problem at hand. This book provides the readers with an in-depth knowledge of the various categories/classes of research problems that professionals, researchers and students might encounter following which the applications of appropriate mathematical models is explained with the help of case studies. The book is targeted at academicians, researchers, students and professionals who belong to all engineering disciplines.

The Convergence of Internet of Things and Cloud for Smart Computing - Parikshit N. Mahalle 2021-08-02

This book presents the know-how of the real-time IoT application development activity including a basic understanding of the IoT architecture, use cases, smart computing, and the associated challenges in design and development of the IoT system. All the technical details

related to protocol stack, technologies, and platforms used for the implementation are explained. It further includes techniques and case studies that include smart computing on the IoT–Cloud models along with test beds for experimentation purposes. The book aims at setting up the groundwork for the creation of applications that can help make day-to-day tasks simpler by meeting the needs of varied sectors like education, health care, agriculture, and so forth. Features: • Covers IoT cloud convergence with a focus on complex industrial IoT case studies. • Discusses the broad background of IoT–Cloud convergence architectures and its fundamentals along with resource provisioning mechanisms. • Emphasizes the use of context in developing context-aware IoT solutions. • Presents a novel C-model that explains the IoT application development phases. • Discusses a simplified convergence model that depicts the role of Cloud in an IoT application. This book aims at graduate students, researchers, and professionals getting started in the IoT field.

Artificial Intelligence in Information and Communication Technologies, Healthcare and Education - Parikshit N Mahalle 2022-12-27

Artificial Intelligence in Information and Communication Technologies, Healthcare and Education: A Roadmap Ahead is designed as a reference text and discusses inter-dependability, communication and effective control for the betterment of services through artificial intelligence (AI), as well as the challenges and path ahead for AI in computing and control across different domains of business and human life. The book accommodates technologies and application domains including backbone hardware, systems and methods for deployment, which help incorporating intelligence through different supervised and probabilistic learning approaches. Features The book attempts to establish a connection between hardware, software technologies and algorithmic intelligence for data analysis and decision support in domains such as healthcare, education and other aspects of business and mobility. It presents various recent applications of artificial intelligence in information and communication technologies such as search and optimization methods, machine learning, data representation and ontologies, and multi-agent systems. The book provides a collection of different case studies with experimentation results than mere theoretical and generalized approaches. Covers most of the applications using the trending technologies like machine learning (ML), data science (DS), Internet of Things (IoT), and underlying information and communication technologies. The book is aimed primarily at advanced undergraduates and postgraduate students studying computer science, computer applications, and information technology. Researchers and professionals will also find this book useful.

Probability and Statistics - Dr. J. S. Chitode 2021-01-01

First chapter deals with probability and random variable discussion. CDF, PDF and two dimensional random variables are discussed. Second chapter presents various useful probability distribution models. It also presents useful statistical averages such as mean, moments, variance, etc. Third chapter presents basic statistics concepts. Mean, median, mode, moments, variance, Kurtosis, skewness are discussed. Correlation, regression, Chebyshev inequality are also presented. Fourth chapter discusses formation of hypothesis, tests of significance and chi-square distribution. Last chapter presents curve fitting using straight line and second degree parabola.

Data Science for Civil Engineering - Rakesh K. Jain 2023-05-10

This book explains use of data science-based techniques for modeling and providing optimal solutions to complex problems in civil engineering. It discusses civil engineering problems like air, water and land pollution, climate crisis, transportation infrastructures, traffic and travel modes, mobility services, and so forth. Divided into two sections, the first one deals with the basics of data science and essential mathematics while the second section covers pertinent applications in structural and environmental engineering, construction management, and transportation. Features: Details information on essential mathematics required to implement civil engineering applications using data science techniques. Discusses broad background of data science and its fundamentals. Focusses on structural engineering, transportation systems, water resource management, geomatics, and environmental engineering. Includes python programming libraries to solve complex problems. Addresses various real-world applications of data science based civil engineering use cases. This book aims at senior undergraduate students in Civil Engineering and Applied Data Science.

Data Analytics for Pandemics - Gitanjali Rahul Shinde 2020-09-04

"Epidemic trend analysis, timeline progression, prediction and recommendation are critical for initiating effective public health control strategies and AI and data analytics play an important role in epidemiology, diagnostic and clinical fronts. The focus of this book is data analytics for COVID-19 which includes an overview of COVID-19 in terms of epidemic/pandemic, data processing and knowledge extraction. Data sources, storage and platforms are discussed along with discussion on data models, their performance, different Big data techniques, tools and technologies. This book also addresses the challenges in applying analytics to pandemic scenarios, case studies and control strategies"--

Information Retrieval and Natural Language Processing - Sheetal S. Sonawane 2022-04-05

This book gives a comprehensive view of graph theory in informational

retrieval (IR) and natural language processing(NLP). This book provides number of graph techniques for IR and NLP applications with examples. It also provides understanding of graph theory basics, graph algorithms and networks using graph. The book is divided into three parts and contains nine chapters. The first part gives graph theory basics and graph networks, and the second part provides basics of IR with graph-based information retrieval. The third part covers IR and NLP recent and emerging applications with case studies using graph theory. This book is unique in its way as it provides a strong foundation to a beginner in applying mathematical structure graph for IR and NLP applications. All technical details that include tools and technologies used for graph algorithms and implementation in Information Retrieval and Natural Language Processing with its future scope are explained in a clear and organized format.

Internet Programming - Anuradha A. Puntambekar 2020-12-01

This textbook provides comprehensive introduction to scripting languages that are used for creating web based applications. The book is divided into five different sections. In the first section the book introduces web site basics, HTTP, HTML5 and CSS3. The second and third section is based on client side and server side scripting. In these sections, the client side scripting such as JavaScript, DHTML and JSON is introduced. The sever side programming includes Servlet programming and JSP. In this section Java Database Connectivity is introduced and Simple Web Applications based on database connectivity have been developed. The fourth section deals with PHP and XML. The last section includes introduction to AJAX and Web Services. A database driven web service is developed and explained in step by step manner. At the end of the book some sample programs based on various scripting languages are given. The books helps the reader to learn the internet programming in the most lucid way. Various programming examples discussed in this book will motivate the students to learn the subject.

Identity Management for Internet of Things - Parikshit N. Mahalle 2022-09-01

The Internet of Things is a wide-reaching network of devices, and these devices can intercommunicate and collaborate with each other to produce variety of services at any time, any place, and in any way. Maintaining access control, authentication and managing the identity of devices while they interact with other devices, services and people is an important challenge for identity management. The identity management presents significant challenges in the current Internet communication. These challenges are exacerbated in the internet of things by the unbound number of devices and expected limitations in constrained resources.

Current identity management solutions are mainly concerned with identities that are used by end users, and services to identify themselves in the networked world. However, these identity management solutions are designed by considering that significant resources are available and applicability of these identity management solutions to the resource constrained internet of things needs a thorough analysis. Technical topics discussed in the book include:• Internet of Things;• Identity Management;• Identity models in Internet of Things;• Identity management and trust in the Internet of Things context;• Authentication and access control;Identitymanagement for Internet of Things contributes to the area of identity management for ubiquitous devices in the Internet of Things. It initially presents the motivational factors together with the identity management problems in the context of Internet of Things and proposes an identity management framework. Following this, it refers to the major challenges for Identitymanagement and presents different identity management models. This book also presents relationship between identity and trust, different approaches for trust management, authentication and access control.

Data Storytelling and Visualization with Tableau - Prachi Manoj Joshi 2022-08-05

With the tremendous growth and availability of the data, this book covers understanding the data, while telling a story with visualization including basic concepts about the data, the relationship and the visualizations. All the technical details that include installation and building the different visualizations are explained in a clear and systematic way. Various aspects pertaining to storytelling and visualization are explained in the book through Tableau. Features Provides a hands-on approach in Tableau in a simplified manner with steps Discusses the broad background of data and its fundamentals, from the Internet of Everything to analytics Emphasizes the use of context in delivering the stories Presents case studies with the building of a dashboard Presents application areas and case studies with identification of the impactful visualization This book will be helpful for professionals, graduate students and senior undergraduate students in Manufacturing Engineering, Civil and Mechanical Engineering, Data Analytics and Data Visualization.

High-Performance Construction Materials -

Impact of AI Technologies on Teaching, Learning, and Research in Higher Education - Verma, Shivani 2020-08-21

Within higher education, there are enormous untapped opportunities for product/services companies, administrators, educators, start-ups. and technology professionals to begin embracing artificial intelligence (AI)

across the student ecosystem and infuse innovation into traditional academic processes by leveraging disruptive technologies. This type of human-machine interface presents the immediate potential to change the way we learn, memorize, access, and create information. These solutions present new openings for education for all while fostering lifelong learning in a strengthened model that can preserve the integrity of core values and the purpose of higher education. Impact of AI Technologies on Teaching, Learning, and Research in Higher Education explores the phenomena of the emergence of the use of AI in teaching and learning in higher education, including examining the positive and negative aspects of AI. Recent technological advancements and the increasing speed of adopting new technologies in higher education are discussed in order to predict the future nature of higher education in a world where AI is part of the fabric of universities. The book also investigates educational implications of emerging technologies on the way students learn and how institutions teach and evolve. Finally, challenges for the adoption of these technologies for teaching, learning, student support, and administration are addressed. Highlighting such tools as machine learning, natural language processing, and self-learning systems, this scholarly book is of interest to university administrators, educational software developers, instructional designers, policymakers, government officials, academicians, researchers, and students, as well as international agencies, organizations, and professionals interested in implementing AI in higher education.

Handbook on ICT in Developing Countries - Knud Erik Skouby 2022-09-01 Handbook on ICT in Developing Countries: Next Generation ICT Technologies is the second volume of the Handbook of ICT in Developing Countries. The first volume was on the potential implementation and service delivery of the forth-coming 5G networks. Here the focus is on the new technologies and services enabled by 5G networks or broadband Internet networks including artificial Intelligence (AI), machine learning, augmented reality, Internet of Things (IoT), autonomous driving, blockchain solutions, cloud solutions etc. Some of these are already globally experiencing growth in the existing networks and all of them are expected to grow substantially in the future. Examples: currently, 5% of global organizations have fully adopted AI, but the penetration is expected to increase rapidly before 2025. IoT with 20.35 billion devices connected in 2017 is estimated to show 75.44 billion devices connected in 2025. The expected growth is based on delivering of new value to businesses and citizens. It is, however, not obvious that this growth will also occur in developing countries. Currently, the digital divide between developing countries and developed countries is widening. This is mostly due to the lack of infrastructure and low level of awareness by the businesses and

citizens of the value made possible by the new technologies for developing countries. The book discusses the potentials of the new technologies for developing countries and the need for market interventions that will facilitate the demand and supply side of the market. It is designed for a broad audience including practitioners, researchers, academics, policy makers and industry players and influencers. The language and approach to the handbook is a combination of the academic writing style and professional reviews.

Authorization and Access Control - Parikshit N. Mahalle 2022-02-28

This book focuses on various authorization and access control techniques, threats and attack modeling, including an overview of the Open Authorization 2.0 (OAuth 2.0) framework along with user-managed access (UMA) and security analysis. Important key concepts are discussed regarding login credentials with restricted access to third parties with a primary account as a resource server. A detailed protocol overview and authorization process, along with security analysis of OAuth 2.0, are also discussed in the book. Case studies of websites with vulnerability issues are included. FEATURES Provides an overview of the security challenges of IoT and mitigation techniques with a focus on authorization and access control mechanisms Discusses a behavioral analysis of threats and attacks using UML base modeling Covers the use of the OAuth 2.0 Protocol and UMA for connecting web applications Includes role-based access control (RBAC), discretionary access control (DAC), mandatory access control (MAC) and permission-based access control (PBAC) Explores how to provide access to third-party web applications through a resource server by use of a secured and reliable OAuth 2.0 framework This book is for researchers and professionals who are engaged in IT security, auditing and computer engineering.

Handbook of Research on Applied Intelligence for Health and Clinical Informatics - Thakare, Anuradha Dheeraj 2021-10-22

Currently, informatics within the field of public health is a developing and growing industry. Clinical informatics are used in direct patient care by supplying medical practitioners with information that can be used to develop a care plan. Intelligent applications in clinical informatics facilitates with the technology-based solutions to analyze data or medical images and help clinicians to retrieve that information. Decision models aid with making complex decisions especially in uncertain situations. The Handbook of Research on Applied Intelligence for Health and Clinical Informatics is a comprehensive reference book that focuses on the study of resources and methods for the management of healthcare infrastructure and information. This book provides insights on how applied intelligence with deep learning, experiential learning, and more will impact healthcare

and clinical information processing. The content explores the representation, processing, and communication of clinical information in natural and engineered systems. This book covers a range of topics including applied intelligence, medical imaging, telehealth, and decision support systems, and also looks at technologies and tools used in the detection and diagnosis of medical conditions such as cancers, diabetes, heart disease, lung disease, and prenatal syndromes. It is an essential reference source for diagnosticians, medical professionals, imaging specialists, data specialists, IT consultants, medical technologists, academicians, researchers, industrial experts, scientists, and students.

Lasers in Surface Engineering - Narendra B. Dahotre 1998-01-01

Presents various facets of laser surface treatment, emphasizing technologies that are expected to be important soon. The topics include fundamentals and types, surface texturing, heat treatment, metallic and intermetallic coating, the laser deposition of ceramic coatings, polymeric coatings, the cor

Electron Devices and Circuits - Atul. P. Godse 2020-11-01

The book covers all the aspects of theory, analysis, and design of Electron Devices and Circuits for the undergraduate course. The concepts of p-n junction devices, BJT, JFET, MOSFET, electronic devices including UJT, thyristors, IGBT, Amplifier circuits-BJT, JFET and MOSFET amplifiers, multistage and differential amplifiers, feedback amplifiers, and oscillators are explained comprehensively. The book explains various p-n junction devices, including diode, LED, laser diode, Zener diode, and Zener diode regulator. The different types of rectifiers are explained in support. The book covers the construction, operation, and characteristics of BJT, JFET, MOSFET, UJT, Thyristors - SCR, Diac and Triac, and IGBT. It explains the biasing of BJT, JFET, and MOSFET amplifiers, basic BJT, JFET, and MOSFET amplifiers with h-parameters and r-parameters equivalent circuits, multistage amplifiers, differential amplifiers, BiCMOS amplifier, single tuned amplifiers, neutralization methods, power amplifiers, and frequency response. Finally, the book incorporates a detailed discussion of the analysis of the current series, voltage series, current shunt, and voltage shunt feedback amplifiers. The book also includes the discussion of the Barkhausen criterion for oscillations and the detailed analysis of various oscillator circuits, including RC phase shift, Wien bridge, Hartley, Colpitt‘s, Clapp, and crystal oscillators. The book uses straightforward and lucid language to explain each topic. The book provides the logical method of describing the various complicated issues and stepwise methods to make understanding easy. The variety of solved examples is the feature of this book. The book explains the subject's philosophy, which makes understanding the concepts evident and makes the subject more

interesting.

Applied Machine Learning for Smart Data Analysis - Nilanjan Dey 2019-05-20

The book focuses on how machine learning and the Internet of Things (IoT) has empowered the advancement of information driven arrangements including key concepts and advancements. Ontologies that are used in heterogeneous IoT environments have been discussed including interpretation, context awareness, analyzing various data sources, machine learning algorithms and intelligent services and applications. Further, it includes unsupervised and semi-supervised machine learning techniques with study of semantic analysis and thorough analysis of reviews. Divided into sections such as machine learning, security, IoT and data mining, the concepts are explained with practical implementation including results. Key Features Follows an algorithmic approach for data analysis in machine learning Introduces machine learning methods in applications Address the emerging issues in computing such as deep learning, machine learning, Internet of Things and data analytics Focuses on machine learning techniques namely unsupervised and semi-supervised for unseen and seen data sets Case studies are covered relating to human health, transportation and Internet applications

Review of the Research Program of the U.S. DRIVE Partnership - National Academies of Sciences, Engineering, and Medicine 2017-07-28

Review of the Research Program of the U.S. DRIVE Partnership: Fifth Report follows on four previous reviews of the FreedomCAR and Fuel Partnership, which was the predecessor of the U.S. DRIVE Partnership. The U.S. DRIVE (Driving Research and Innovation for Vehicle Efficiency and Energy Sustainability) vision, according to the charter of the Partnership, is this: American consumers have a broad range of affordable personal transportation choices that reduce petroleum consumption and significantly reduce harmful emissions from the transportation sector. Its mission is as follows: accelerate the development of pre-competitive and innovative technologies to enable a full range of efficient and clean advanced light-duty vehicles (LDVs), as well as related energy infrastructure. The Partnership focuses on precompetitive research and development (R&D) that can help to accelerate the emergence of advanced technologies to be commercialization-feasible. The guidance for the work of the U.S. DRIVE Partnership as well as the priority setting and targets for needed research are provided by joint industry/government technical teams. This structure has been demonstrated to be an effective means of identifying high-priority, long-term precompetitive research needs for each technology with which the Partnership is involved. Technical areas in which research and development as well as technology validation

programs have been pursued include the following: internal combustion engines (ICEs) potentially operating on conventional and various alternative fuels, automotive fuel cell power systems, hydrogen storage systems (especially onboard vehicles), batteries and other forms of electrochemical energy storage, electric propulsion systems, hydrogen production and delivery, and materials leading to vehicle weight reductions.

Prognostics and Health Management of Electronics - Michael G. Pecht 2008-09-11

The first book on Prognostics and Health Management of Electronics Recently, the field of prognostics for electronic products has received increased attention due to the potential to provide early warning of system failures, forecast maintenance as needed, and reduce life cycle costs. In response to the subject's growing interest among industry, government, and academic professionals, this book provides a road map to the current challenges and opportunities for research and development in Prognostics and Health Management (PHM). The book begins with a review of PHM and the techniques being developed to enable a prognostics approach for electronic products and systems. building on this foundation, the book then presents the state of the art in sensor systems for in-situ health and usage monitoring. Next, it discusses the various models and algorithms that can be utilized in PHM. Finally, it concludes with a discussion of the opportunities in future research. Readers can use the information in this book to: Detect and isolate faults Reduce the occurrence of No Fault Found (NFF) Provide advanced warning of system failures Enable condition-based (predictive) maintenance Obtain knowledge of load history for future design, qualification, and root cause analysis Increase system availability through an extension of maintenance cycles and/or timely repair actions Subtract life cycle costs of equipment from reduction in inspection costs, down time, and inventory Prognostics and Health Management of Electronics is an indispensable reference for electrical engineers in manufacturing, systems maintenance, and management, as well as design engineers in all areas of electronics.

Research Methodology - Vinayak Bairagi 2019-01-30

This book offers a design research methodology intended to improve the quality of design research- its academic credibility, industrial significance and societal contribution by enabling more thorough, efficient and effective procedures.

Information and Communication Technology for Sustainable Development - Durgesh Kumar Mishra 2017-11-07

The book proposes new technologies and discusses future solutions for design infrastructure for ICT. The book contains high quality submissions

presented at Second International Conference on Information and Communication Technology for Sustainable Development (ICT4SD - 2016) held at Goa, India during 1 - 2 July, 2016. The conference stimulates the cutting-edge research discussions among many academic pioneering researchers, scientists, industrial engineers, and students from all around the world. The topics covered in this book also focus on innovative issues at international level by bringing together the experts from different countries.

Artificial Intelligence in Information and Communication Technologies, Healthcare and Education - Parikshit N Mahalle 2022-12-27

"Artificial Intelligence in Information and Communication Technologies, Healthcare and Education: A Roadmap Ahead is designed as a reference text and discusses inter-dependability, communication and effective control for the betterment of services through artificial intelligence, as well as the challenges and path ahead for AI in computing and control across different domains of business and human life. The book accommodates technologies and application domains including backbone hardware, systems and methods for deployment, which help incorporating intelligence through different supervised and probabilistic learning approaches"--

COVID-19 Public Health Measures - Nuzhat F. Shaikh 2021-05-03

Considering the overall situation of the current pandemic and pertinent recommendations, this book focuses on the use of augmented reality (AR) applications for preventing COVID-19 outbreaks along with techniques, tools, and platforms to achieve social distancing.and sanitization. COVID-19 Public Health Measures: An Augmented Reality Perspective contains theoretical and practical knowledge of AR and remedies on how to cope with the pandemic, including multiple use cases along with a set of recommendations. This book illustrates application building using open-source software with an interactive interface to aid impaired users. The initial part of this book emphasizes the basic knowledge of AR, technology, devices, and rest of the relevant theories. This book is aimed at researchers, students of AR, technical healthcare professionals, and practitioners. Key Features: • Consists of an extensive introduction to the terminologies and components of AR • Provides in-depth knowledge of various tools and techniques used in AR • Introduces various platforms and software development kits (SDKs) such as Unity Engine, Unreal Engine, and Vuforia • Gives a step-by-step guide for the development of an AR app • Describes how AR can be used specifically by impaired users not only in the situation of current pandemic but also in normal situations thus simplifying day-to-day activities

Quality of Work-Life During Pandemic - Gitanjali Rahul Shinde 2021-11-22

This book is focused on the impact of the COVID-19 pandemic on different

sectors, i.e., education, real estate, health, and agriculture. The lockdown has been announced to control the spread of COVID-19 infections, however people/industries/organizations were not ready for lockdown and it has greatly affected their growth. The front workers in the healthcare sector suffered a lot as major responsibilities they needed to carry on. The education sector is also hampered due to the pandemic as schools, colleges were closed and teaching, examinations were carried out on online platforms. These platforms were new to teachers as well as students. The real estate sector faced tremendous loss in this pandemic as people were scared and no one ready to invest their money in such an uncertain time. The agriculture filed is also suffered as raw materials required for agriculture were not available readily due to pandemic. This book presents a survey that is conducted to understand the impact of COVID-19 on the quality of work-life in various sectors. The survey is focused majorly on four sectors, i.e. education, healthcare, real estate and agriculture. Data analysis is done based on responses of survey and mathematical modeling is provided for each case study.

Handbook of Research on Securing Cloud-Based Databases with Biometric Applications - Deka, Ganesh Chandra 2014-10-31

Cloud technologies have revolutionized the way we store information and perform various computing tasks. With the rise of this new technology, the ability to secure information stored on the cloud becomes a concern. The Handbook of Research on Securing Cloud-Based Databases with Biometric Applications explores the latest innovations in promoting cloud security through human authentication techniques. Exploring methods of access by identification, including the analysis of facial features, fingerprints, DNA, dental characteristics, and voice patterns, this publication is designed especially for IT professionals, academicians, and upper-level students seeking current research surrounding cloud security.