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The proceedings covers advanced and multi-disciplinary research on design of smart computing and informatics. The theme of the book broadly focuses on various innovation paradigms in system knowledge, intelligence and sustainability that may be applied to provide realistic solution to varied problems in society, environment and industries. The volume publishes quality work pertaining to the scope of the conference which is extended towards deployment of emerging computational and knowledge transfer approaches, optimizing solutions in varied disciplines of science, technology and healthcare.

This two-volume set, LNCS 11641 and 11642, constitutes the thoroughly refereed proceedings of the Third International Joint Conference, APWeb-WAIM 2019, held in Chengdu, China, in August 2019. The 42 full papers presented together with 17 short papers, and 6 demonstration papers were carefully reviewed and selected from 180 submissions. The papers are organized around the following topics: Big Data Analytics; Data and Information Quality; Data Mining and Application; Graph Data and Social Networks; Information Extraction and Retrieval; Knowledge Graph; Machine Learning; Recommender Systems; Storage, Indexing and Physical Database Design; Spatial, Temporal and Multimedia Databases; Text Analysis and Mining; and Demo.

This book constitutes thoroughly revised and selected papers from the 12th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications, VISIGRAPP 2017, held in Porto, Portugal, February 27 - March 1, 2017. The 18 thoroughly revised and extended papers presented in this volume were carefully reviewed and selected from 402 submissions. The papers contribute to the understanding of relevant trends of current research on image and video formation, preprocessing, analysis and understanding; motion, tracking and stereo vision; computer graphics and rendering; data visualization and interactive visual data analysis; agent-based human-robot interactions; and user experience.

This book is a collection of scientific papers concerning multilevel inverters examined from different points of view. Many applications are considered, such as renewable energy interface, power conditioning systems, electric drives, and chargers for electric vehicles. Different topologies have been examined in both new configurations and well-established structures, introducing novel and particular modulation strategies, and examining the effect of modulation techniques on voltage and current harmonics and the total harmonic distortion.

Get up to speed with the protocols, network architectures and techniques for 5G wireless networks with this comprehensive guide.

This book constitutes the refereed proceedings of the 15th Information Retrieval Technology Conference, AIRS 2019, held in Hong Kong, China, in November 2019. The 14 full papers presented together with 3 short papers were carefully reviewed and selected from 27 submissions. The scope of the conference covers applications, systems, technologies and theory aspects of information retrieval in text, audio, image, video and multimedia data.

This book constitutes the proceedings of the Third International Conference on 6G for Future Wireless Networks, 6GN 2020, held in Tianjin, China, in August 2020. The conference was held virtually due to the COVID-19 pandemic. The 45 full papers were selected from 109 submissions and present the state of the art and practical applications of 6G technologies. The papers are arranged thematically on network scheduling and optimization; wireless system and platform; intelligent applications; network performance evaluation; cyber security and privacy; technologies for private 5G/6G.

Tensor is a natural representation for multi-dimensional data, and tensor computation can avoid possible multi-linear data structure loss in classical matrix computation-based data analysis. This book is intended to provide non-specialists an overall understanding of tensor computation and its applications in data analysis, and benefits researchers, engineers, and students with theoretical, computational, technical and experimental details. It presents a systematic and up-to-date overview of tensor decompositions from the engineer's point of view, and comprehensive coverage of tensor computation based data analysis techniques. In addition, some practical examples in machine learning, signal processing, data mining, computer vision, remote sensing, and biomedical engineering are also presented for easy understanding and implementation. These data analysis techniques may be further applied in other applications on neuroscience, communication, psychometrics, chemometrics, biometrics, quantum physics, quantum chemistry, etc. The discussion begins with basic coverage of notations, preliminary operations in tensor computations, main tensor decompositions and their properties. Based on them, a series of tensor-based data analysis techniques are presented as the tensor extensions of their classical matrix counterparts, including tensor dictionary learning, low rank tensor recovery, tensor completion, coupled tensor analysis, robust principal tensor component analysis, tensor regression, logistical tensor regression, support tensor machine, multilinear discriminate analysis, tensor subspace clustering, tensor-based deep learning, tensor graphical model and tensor sketch. The discussion also includes a number of typical applications with experimental results, such as image reconstruction, image enhancement, data fusion, signal recovery, recommendation system, knowledge graph acquisition, traffic flow prediction, link prediction, environmental prediction, weather forecasting, background extraction, human pose estimation, cognitive state classification from fMRI, infrared small target detection, heterogeneous information networks clustering, multi-view image clustering, and deep neural network compression.

Dielectrics in Electric Fields explores the influence of electric fields on dielectric—i.e., non-conducting or insulating—materials, examining the distinctive behaviors of these materials through well-established principles of physics and engineering. Featuring five new chapters, nearly 200 new figures, and more than 800 new citations, this fully updated and significantly expanded Second Edition: Analyzes inorganic substances with real-life applications in harsh working conditions such as outdoor, nuclear, and space environments Introduces methods for measuring dielectric properties at microwave frequencies, presenting results obtained for specific materials Discusses the application of dielectric theory in allied fields such as corrosion studies, civil engineering, and health sciences Combines in one chapter coverage of electrical breakdown in gases with breakdown in micrometric gaps Offers extensive coverage of electron energy distribution—essential knowledge required for the application of plasma sciences in medical science Delivers a detailed review of breakdown in liquids, along with an overview of electron mobility, providing a clear understanding of breakdown phenomena Explains breakdown in solid dielectrics such as single crystals, polycrystalline and amorphous states, thin films, and powders compressed to form pellets Addresses the latest advances in dielectric theory and research, including cutting-edge nanodielectric materials and their practical applications Blends early classical papers that laid the foundation for much of the dielectric theory with more recent work The author has drawn from more than 55 years of research studies and experience in the areas of high-voltage engineering, power systems, and dielectric materials and systems to supply both aspiring and practicing engineers with a comprehensive, authoritative source for up-to-date information on dielectrics in

electric fields.

This book provides a thorough guide to the use of numerical methods in energy systems and applications. It presents methods for analysing engineering applications for energy systems, discussing finite difference, finite element, and other advanced numerical methods. Solutions to technical problems relating the application of these methods to energy systems are also thoroughly explored. Readers will discover diverse perspectives of the contributing authors and extensive discussions of issues including: • a wide variety of numerical methods concepts and related energy systems applications; • systems equations and optimization, partial differential equations, and finite difference method; • methods for solving nonlinear equations, special methods, and their mathematical implementation in multi-energy sources; • numerical investigations of electrochemical fields and devices; and • issues related to numerical approaches and optimal integration of energy consumption. This is a highly informative and carefully presented book, providing scientific and academic insight for readers with an interest in numerical methods and energy systems. This book presents the proceedings of the 7th International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA 2018), held at Duy Tan University, Da Nang, Vietnam. The event brought together researchers, scientists, engineers, and practitioners to exchange ideas and experiences in the domain of intelligent computing theories with prospective applications in various engineering disciplines. These proceedings are divided into two volumes. Covering broad areas of intelligent engineering informatics, with papers exploring both the theoretical and practical aspects of various areas like ANN and genetic algorithms, human–computer interaction, intelligent control optimization, intelligent e-learning systems, machine learning, mobile computing, and multi-agent systems, this volume is a valuable resource for postgraduate students in various engineering disciplines.

This book presents the latest findings in the areas of data management and smart computing, big data management, artificial intelligence and data analytics, along with advances in network technologies. It addresses state-of-the-art topics and discusses challenges and solutions for future development. Gathering original, unpublished contributions by scientists from around the globe, the book is mainly intended for a professional audience of researchers and practitioners in academia and industry.

The LNCS volume LNCS 9714 constitutes the refereed proceedings of the International Conference on Data Mining and Big Data, DMBD 2016, held in Bali, Indonesia, in June 2016. The 57 papers presented in this volume were carefully reviewed and selected from 115 submissions. The theme of DMBD 2016 is "Serving Life with Data Science". Data mining refers to the activity of going through big data sets to look for relevant or pertinent information. The papers are organized in 10 cohesive sections covering all major topics of the research and development of data mining and big data and one Workshop on Computational Aspects of Pattern Recognition and Computer Vision.

IEEE Standard for Performance of Adjustable Speed AC Drives Rated 375 kW and Larger IEEE Std 1566-2015 (Revision of IEEE Std 1566-2005) IEEE Standard for Performance of Adjustable-Speed AC Drives Rated 375 kW and Larger IEEE Std 1566-2015 (Revision of IEEE Std 1566-2005) - Redline IEEE Standard for Performance of Adjustable-Speed AC Drives Rated 375 kW and

Larger - RedlineIEEE Std 1566-2015 (Revision of IEEE Std 1566-2005) - RedlineEnergy Production Systems EngineeringJohn Wiley & Sons

This two-volume set of LNCS 12463 and LNCS 12464 constitutes - in conjunction with the volume LNAI 12465 - the refereed proceedings of the 16th International Conference on Intelligent Computing, ICIC 2020, held in Bari, Italy, in October 2020. The 162 full papers of the three proceedings volumes were carefully reviewed and selected from 457 submissions. The ICIC theme unifies the picture of contemporary intelligent computing techniques as an integral concept that highlights the trends in advanced computational intelligence and bridges theoretical research with applications. The theme for this conference is "Advanced Intelligent Computing Methodologies and Applications." Papers related to this theme are especially solicited, addressing theories, methodologies, and applications in science and technology.

The four-volume set LNCS 11056, 110257, 11258, and 11073 constitutes the refereed proceedings of the First Chinese Conference on Pattern Recognition and Computer Vision, PRCV 2018, held in Guangzhou, China, in November 2018. The 179 revised full papers presented were carefully reviewed and selected from 399 submissions. The papers have been organized in the following topical sections: Part I: Biometrics, Computer Vision Application. Part II: Deep Learning. Part III: Document Analysis, Face Recognition and Analysis, Feature Extraction and Selection, Machine Learning. Part IV: Object Detection and Tracking, Performance Evaluation and Database, Remote Sensing.

This book will help readers understand fundamental and advanced statistical models and deep learning models for robust speaker recognition and domain adaptation. This useful toolkit enables readers to apply machine learning techniques to address practical issues, such as robustness under adverse acoustic environments and domain mismatch, when deploying speaker recognition systems. Presenting state-of-the-art machine learning techniques for speaker recognition and featuring a range of probabilistic models, learning algorithms, case studies, and new trends and directions for speaker recognition based on modern machine learning and deep learning, this is the perfect resource for graduates, researchers, practitioners and engineers in electrical engineering, computer science and applied mathematics.

Energy Production Systems Engineering presents IEEE, Electrical Apparatus Service Association (EASA), and International Electrotechnical Commission (IEC) standards of engineering systems and equipment in utility electric generation stations. Includes fundamental combustion reaction equations Provides methods for measuring radioactivity and exposure limits Includes IEEE, American Petroleum Institute (API), and National Electrical Manufacturers Association (NEMA) standards for motor applications Introduces the IEEE C37 series of standards, which describe the proper selections and applications of switchgear Describes how to use IEEE 80 to calculate the touch and step potential of a ground grid design This book enables engineers and students to acquire through study the pragmatic knowledge and skills in the field that could take years to acquire through experience alone.

This book constitutes the proceedings of the 16th International Conference on Advanced Data Mining and Applications, ADMA 2020, held in Foshan, China in November 2020. The 35 full papers presented together with 14 short papers were carefully reviewed and selected from 96 submissions. The papers were organized in topical sections named: Machine Learning; Text Mining; Graph Mining; Predictive Analytics; Recommender Systems; Privacy and Security; Query Processing; Data Mining Applications.

This open access book focuses on robot introspection, which has a direct impact on physical human-robot interaction and long-term autonomy, and which can benefit from autonomous anomaly monitoring and diagnosis, as well as anomaly recovery strategies. In robotics, the ability to reason, solve their own anomalies and proactively enrich owned knowledge is a direct way to improve autonomous behaviors. To this end, the authors start by considering the underlying pattern of multimodal observation during robot manipulation, which can effectively be modeled as a parametric hidden Markov model (HMM). They then adopt a nonparametric Bayesian approach in defining a prior using the hierarchical Dirichlet process (HDP) on the standard HMM parameters, known as the Hierarchical Dirichlet Process Hidden Markov Model (HDP-HMM). The HDP-HMM can examine an HMM with an unbounded number of possible states and allows flexibility in the complexity of the learned model and the development of reliable and scalable variational inference methods. This book is a valuable reference resource for researchers and designers in the field of robot learning and multimodal perception, as well as for senior undergraduate and graduate university students.

This book highlights research in linking and mining data from across varied data sources. The authors focus on recent advances in this burgeoning field of multi-source data fusion, with an emphasis on exploratory and unsupervised data analysis, an area of increasing significance with the pace of growth of data vastly outpacing any chance of labeling them manually. The book looks at the underlying algorithms and technologies that facilitate the area within big data analytics, it covers their applications across domains such as smarter transportation, social media, fake news detection and enterprise search among others. This book enables readers to understand a spectrum of advances in this emerging area, and it will hopefully empower them to leverage and develop methods in multi-source data fusion and analytics with applications to a variety of scenarios. Includes advances on unsupervised, semi-supervised and supervised approaches to heterogeneous data linkage and fusion; Covers use cases of analytics over multi-view and heterogeneous data from across a variety of domains such as fake news, smarter transportation and social media, among others; Provides a high-level overview of advances in this emerging field and empowers the reader to explore novel applications and methodologies that would enrich the field.

Future remote sensing systems will make extensive use of Compressive Sensing (CS) as it becomes more integrated

into the system design with increased high resolution sensor developments and the rising earth observation data generated each year. Written by leading experts in the field Compressive Sensing of Earth Observations provides a comprehensive and balanced coverage of the theory and applications of CS in all aspects of earth observations. This work covers a myriad of practical aspects such as the use of CS in detection of human vital signs in a cluttered environment and the corresponding modeling of rib-cage breathing. Readers are also presented with three different applications of CS to the ISAR imaging problem, which includes image reconstruction from compressed data, resolution enhancement, and image reconstruction from incomplete data.

This four-volume set of LNCS 12821, LNCS 12822, LNCS 12823 and LNCS 12824, constitutes the refereed proceedings of the 16th International Conference on Document Analysis and Recognition, ICDAR 2021, held in Lausanne, Switzerland in September 2021. The 182 full papers were carefully reviewed and selected from 340 submissions, and are presented with 13 competition reports. The papers are organized into the following topical sections: historical document analysis, document analysis systems, handwriting recognition, scene text detection and recognition, document image processing, natural language processing (NLP) for document understanding, and graphics, diagram and math recognition.

This book intends to introduce some recent results on passivity of complex dynamical networks with single weight and multiple weights. The book collects novel research ideas and some definitions in complex dynamical networks, such as passivity, output strict passivity, input strict passivity, finite-time passivity, and multiple weights. Furthermore, the research results previously published in many flagship journals are methodically edited and presented in a unified form. The book is likely to be of interest to university researchers and graduate students in Engineering and Mathematics who wish to study the passivity of complex dynamical networks.

This book constitutes the revised selected papers from the 15th European Conference on Multi-Agent Systems, EUMAS 2017, and the 5th International Conference on Agreement Technologies, AT 2017, held in Evry, France, in December 2017. The 28 full papers, 3 short papers, and 2 invited papers for EUMAS and the 14 full papers and 2 short papers for AT, presented in this volume were carefully reviewed and selected from a total of 76 submissions. The papers cover thematic areas like agent-based modelling; logic and formal methods; argumentation and rational choice; simulation; games; negotiation, planning, and coalitions; algorithms and frameworks; applications; and philosophical and theoretical studies.

The two-volume set, LNCS 9878 and 9879 constitutes the refereed proceedings of the 21st European Symposium on Research in Computer Security, ESORICS 2016, held in Heraklion, Greece, in September 2016. The 60 revised full papers presented were carefully reviewed and selected from 285 submissions. The papers cover a wide range of topics in security and privacy, including

data protection: systems security, network security, access control, authentication, and security in such emerging areas as cloud computing, cyber-physical systems, and the Internet of Things.

The wavelet is a powerful mathematical tool that plays an important role in science and technology. This book looks at some of the most creative and popular applications of wavelets including biomedical signal processing, image processing, communication signal processing, Internet of Things (IoT), acoustical signal processing, financial market data analysis, energy and power management, and COVID-19 pandemic measurements and calculations. The editor's personal interest is the application of wavelet transform to identify time domain changes on signals and corresponding frequency components and in improving power amplifier behavior.

This book constitutes the refereed proceedings of the 15th International Semantic Web Conference, ESWC 2018, held in Heraklion, Crete, Greece. The 48 revised full papers presented were carefully reviewed and selected from 179 submissions. The papers cover a large range of topics such as logical modelling and reasoning, natural language processing, databases and data storage and access, machine learning, distributed systems, information retrieval and data mining, social networks, and Web science and Web engineering.

Optimal Operation of Integrated Multi-Energy Systems Under Uncertainty discusses core concepts, advanced modeling and key operation strategies for integrated multi-energy systems geared for use in optimal operation. The book particularly focuses on reviewing novel operating strategies supported by relevant code in MATLAB and GAMS. It covers foundational concepts, key challenges and opportunities in operational implementation, followed by discussions of conventional approaches to modeling electricity, heat and gas networks. This modeling is the base for more detailed operation strategies for optimal operation of integrated multi-energy systems under uncertainty covered in the latter part of the work. Reviews advanced modeling approaches relevant to the integration of electricity, heat and gas systems in operation studies Covers stochastic and robust optimal operation of integrated multi-energy systems Evaluates MPC based, real-time dispatch of integrated multi-energy systems Considers uncertainty modeling for stochastic and robust optimization Assesses optimal operation and real-time dispatch for multi-energy building complexes

Power Electronics Handbook, Fourth Edition, brings together over 100 years of combined experience in the specialist areas of power engineering to offer a fully revised and updated expert guide to total power solutions. Designed to provide the best technical and most commercially viable solutions available, this handbook undertakes any or all aspects of a project requiring specialist design, installation, commissioning and maintenance services. Comprising a complete revision throughout and enhanced chapters on semiconductor diodes and transistors and thyristors, this volume includes renewable resource content useful for the new generation of engineering professionals. This market leading reference has new chapters covering electric traction theory and motors and wide band gap (WBG) materials and devices. With this book in hand, engineers will be able to execute design, analysis and evaluation of assigned projects using sound engineering principles and adhering to the business policies and

product/program requirements. Includes a list of leading international academic and professional contributors Offers practical concepts and developments for laboratory test plans Includes new technical chapters on electric vehicle charging and traction theory and motors Includes renewable resource content useful for the new generation of engineering professionals

This book features selected research papers presented at the First International Conference on Computing, Communications, and Cyber-Security (IC4S 2019), organized by Northwest Group of Institutions, Punjab, India, Southern Federal University, Russia, and IAC Educational Trust, India along with KEC, Ghaziabad and ITS, College Ghaziabad as an academic partner and held on 12–13 October 2019. It includes innovative work from researchers, leading innovators and professionals in the area of communication and network technologies, advanced computing technologies, data analytics and intelligent learning, the latest electrical and electronics trends, and security and privacy issues.

The growing mobility needs of travellers have led to the development of increasingly complex and integrated multi-modal transit networks. Hence, transport agencies and transit operators are now more urgently required to assist in the challenging task of effectively and efficiently planning, managing, and governing transit networks. A pre-condition for the development of an effective intelligent multi-modal transit system is the integration of information and communication technology (ICT) tools that will support the needs of transit operators and travellers. To achieve this, reliable real-time simulation and short-term forecasting of passenger demand and service network conditions are required to provide both real-time traveller information and successfully synchronise transit service planning and operations control. *Modelling Intelligent Multi-Modal Transit Systems* introduces the current trends in this newly emerging area. Recent developments in information technology and telematics have enabled a large amount of data to become available, thus further attracting transport researchers to set up new models outside the context of the traditional data-driven approach. The alternative demand-supply interaction or network assignment modelling approach has improved greatly in recent years and has a crucial role to play in this new context.

This book reports on innovative research and developments in automation. Spanning a wide range of disciplines, including communication engineering, power engineering, control engineering, instrumentation, signal processing and cybersecurity, it focuses on methods and findings aimed at improving the control and monitoring of industrial and manufacturing processes as well as safety. Based on the International Russian Automation Conference, held on September 6–12, 2020, in Sochi, Russia, the book provides academics and professionals with a timely overview of and extensive information on the state of the art in the field of automation and control systems, and fosters new ideas and collaborations between groups in different countries.

The 30-volume set, comprising the LNCS books 12346 until 12375, constitutes the refereed proceedings of the 16th European Conference on Computer Vision, ECCV 2020, which was planned to be held in Glasgow, UK, during August 23-28, 2020. The conference was held virtually due to the COVID-19 pandemic. The 1360 revised papers presented in these proceedings were carefully reviewed and selected from a total of 5025 submissions. The papers deal with topics such as computer vision; machine learning; deep neural networks; reinforcement learning; object recognition; image classification; image processing; object

detection; semantic segmentation; human pose estimation; 3d reconstruction; stereo vision; computational photography; neural networks; image coding; image reconstruction; object recognition; motion estimation.

This six volume set LNCS 11063 – 11068 constitutes the thoroughly refereed conference proceedings of the 4th International Conference on Cloud Computing and Security, ICCCS 2018, held in Haikou, China, in June 2018. The 386 full papers of these six volumes were carefully reviewed and selected from 1743 submissions. The papers cover ideas and achievements in the theory and practice of all areas of inventive systems which includes control, artificial intelligence, automation systems, computing systems, electrical and informative systems. The six volumes are arranged according to the subject areas as follows: cloud computing, cloud security, encryption, information hiding, IoT security, multimedia forensics.

This book constitutes the proceedings of the 12th International Conference on Internet and Distributed Systems held in Naples, Italy, in October 2019. The 47 revised full papers presented were carefully reviewed and selected from 145 submissions. This conference desires to look for inspiration in diverse areas (e.g. infrastructure & system design, software development, big data, control theory, artificial intelligence, IoT, self-adaptation, emerging models, paradigms, applications and technologies related to Internet-based distributed systems) to develop new ways to design and manage such complex and adaptive computation resources.

This proceedings book showcases the latest research work presented at the Second Edition of the Mediterranean Symposium on Smart City Application (SCAMS 2017), which was held in Tangier, Morocco on October 15–27, 2017. It presents original research results, new ideas and practical development experiences that concentrate on both theory and practice. It includes papers from all areas of Smart City Applications, e.g. Smart Mobility, Big Data, Smart Grids, Smart Homes and Buildings, clouds, crowds, mashups, social networks, and security issues. The conference stimulated cutting-edge research discussions among pioneering researchers, scientists, industrial engineers, and students from all around the world. The topics covered in this book also focus on innovative issues at the international level by bringing together experts from different countries. The scope of SCAMS 2017 included methods and practices that combine various emerging internetworking and data technologies to capture, integrate, analyze, mine, annotate, and visualize data in a meaningful and collaborative manner. A series of international workshops were organized as invited sessions during the SCAMS 2017: The 2nd International Workshop on Smart Learning & Innovative Educations, The 1st International Workshop on Smart Healthcare, The 1st International Workshop on Mathematics for Smart City, The 1st International Workshop Industry 4.0 and Smart Manufacturing

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