

# Recent Progress In Data Engineering And Internet Technology Vol 1

This book constitutes the refereed proceedings of the 18th International Conference on Intelligent Data Engineering and Automated Learning, IDEAL 2017, held in Guilin, China, in October/November 2017. The 65 full papers presented were carefully reviewed and selected from 110 submissions. These papers provided a sample of latest research outcomes in data engineering and automated learning, from methodologies, frameworks and techniques to applications. In addition to various topics such as evolutionary algorithms, deep learning neural networks, probabilistic modelling, particle swarm intelligence, big data analytics, and applications in image recognition, regression, classification, clustering, medical and biological modelling and prediction, text processing and social media analysis.

J.-P. CALISTE, A. TRUYOL AND J. WESTBROOK The Series, "Data and Knowledge in a Changing World", exemplifies CODATA's primary purpose of collecting, from widely different fields, a wealth of information on efficient exploitation of data for progress in science and technology and making that information available to scientists and engineers. A separate and complementary CODATA Reference Series will present Directories of compiled and evaluated data and Glossaries of data-related terms. The present book "Thermodynamic Modeling and Materials Data Engineering" discusses thermodynamic, structural, systemic and heuristic approaches to the modeling of complex materials behavior in condensed phases, both fluids and solids, in order to evaluate their potential applications. It was inspired by the Symposium on

"Materials and Structural Properties" held during the 14th International CODATA Conference in Chambéry, France. The quality of the contributions to this Symposium motivated us to present" a coherent book of interest to the field. Updated contributions inspired by Symposium discussions and selections from other CODATA workshops concerning material properties data and Computer Aided Design combine to highlight the complexity of material data issues on experimental, theoretical and simulation levels Articles were selected for their pertinence in three areas. Complex data leading to interesting developments and tools such as: • new developments in state equations and their applications, • prediction and validation of physical and energy data by group correlations for pure compounds, • modeling and prediction of mixture properties.

As societies continue to grow and develop, the demand for energy has increased worldwide. In China, coal is still one of the principal energy resources and it is expected that more coal mining projects are needed in the future. As mining operations continue to increase their production rates and discover more ore reserves, mine safety issues have b

This book constitutes the thoroughly refereed past-workshop proceedings of the Associated Workshops and the Doctoral Consortium held as satellite events of ADBIS 2009, the 13th East European Conference on Advances in Databases and Information Systems in Riga, Latvia, in September 2009.

This book is an extensive treatise on the most up-to-date advances in computer graphics technology and its applications. Both in business and industrial areas as well as in research and development, you will see in this book an incredible development of new methods and tools for computer graphics. They play essential roles in enhancing the productivity and quality

of human work through computer graphics and applications. Extensive coverage of the diverse world of computer graphics is the privilege of this book, which is the Proceedings of InterGraphics '83. This was a truly international computer graphics conference and exhibit, held in Tokyo, April 11-14, 1983, sponsored by the World Computer Graphics Association (WCGA) and organized by the Japan Management Association (JMA) in cooperation with ACM-SIGGRAPH. InterGraphics has over 15 thousands participants. This book consists of seven Chapters. The first two chapters are on the basics of computer graphics, and the remaining five chapters are dedicated to typical application areas of computer graphics. Chapter 1 contains four papers on "graphics techniques". Techniques to generate jag free images, to simulate digital logic, to display free surfaces and to interact with 3 dimensional (3D) shaded graphics are presented. Chapter 2 covers "graphics standards and 3D models" in five papers. Two papers discuss the CORE standard and the GKS standard. Three papers describe various 3D models and their evaluations.

For 'Recent Progress in Brain and Cognitive Engineering' Brain and Cognitive Engineering is a converging study field to derive a better understanding of cognitive information processing in the human brain, to develop "human-like" and neuromorphic artificial intelligent systems and to help predict and analyze brain-related diseases. The key concept of Brain and Cognitive Engineering is to understand the Brain, to interface the Brain, and to engineer the Brain. It could help us to understand the structure and the key principles of high-order information processing on how the brain works, to develop interface technologies between a brain and external devices and to develop artificial systems that can ultimately mimic human brain functions. The convergence of behavioral, neuroscience and engineering research could lead

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us to advance health informatics and personal learning, to enhance virtual reality and healthcare systems, and to “reverse engineer” some brain functions and build cognitive robots. In this book, four different recent research directions are presented: Non-invasive Brain-Computer Interfaces, Cognitive- and Neural-rehabilitation Engineering, Big Data Neurocomputing, Early Diagnosis and Prediction of Neural Diseases. We cover numerous topics ranging from smart vehicles and online EEG analysis, neuroimaging for Brain-Computer Interfaces, memory implantation and rehabilitation, big data computing in cultural aspects and cybernetics to brain disorder detection. Hopefully this will provide a valuable reference for researchers in medicine, biomedical engineering, in industry and academia for their further investigations and be inspiring to those who seek the foundations to improve techniques and understanding of the Brain and Cognitive Engineering research field.

Recent Progress in Data Engineering and Internet Technology Springer Science & Business Media

The latest inventions in internet technology influence most of business and daily activities. Internet security, internet data management, web search, data grids, cloud computing, and web-based applications play vital roles, especially in business and industry, as more transactions go online and mobile. Issues related to ubiquitous computing are becoming critical. Internet technology and data engineering should reinforce efficiency and effectiveness of business processes. These technologies should help people make better and more accurate decisions by presenting necessary information and possible consequences for the decisions. Intelligent information systems should help us better understand and manage information with ubiquitous data repository and cloud computing. This book is a compilation of some recent

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research findings in Internet Technology and Data Engineering. This book provides state-of-the-art accounts in computational algorithms/tools, database management and database technologies, intelligent information systems, data engineering applications, internet security, internet data management, web search, data grids, cloud computing, web-based application, and other related topics.

In recent years, our world has experienced a profound shift and progression in available computing and knowledge sharing innovations. These emerging advancements have developed at a rapid pace, disseminating into and affecting numerous aspects of contemporary society. This has created a pivotal need for an innovative compendium encompassing the latest trends, concepts, and issues surrounding this relevant discipline area. During the past 15 years, the Encyclopedia of Information Science and Technology has become recognized as one of the landmark sources of the latest knowledge and discoveries in this discipline. The Encyclopedia of Information Science and Technology, Fourth Edition is a 10-volume set which includes 705 original and previously unpublished research articles covering a full range of perspectives, applications, and techniques contributed by thousands of experts and researchers from around the globe. This authoritative encyclopedia is an all-encompassing, well-established reference source that is ideally designed to disseminate the most forward-thinking and diverse research findings. With critical perspectives on the impact of information science management and new technologies in modern settings, including but not limited to computer science, education, healthcare, government, engineering, business, and natural and physical sciences, it is a pivotal and relevant source of knowledge that will benefit every professional within the field of information science and technology and is an invaluable addition

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to every academic and corporate library.

This book constitutes the proceedings of the 14th International Workshop on Knowledge Management and Acquisition for Intelligent Systems, PKAW 2016, held in Phuket, Thailand, in August 2016. The 16 full papers and 5 short papers included in this volume were carefully reviewed and selected from 61 initial submissions. They deal with knowledge acquisition and machine learning; knowledge acquisition and natural language processing; knowledge acquisition from network and big data; and knowledge acquisition and applications.

This book constitutes the refereed proceedings of workshops, held at the 31st International Conference on Conceptual Modeling, ER 2012, in Florence, Italy in October 2012. The 32 revised papers presented together with 6 demonstrations were carefully reviewed and selected from 84 submissions. The papers are organized in sections on the workshops CMS 2012, EDCM-NoCoDa, MODIC, MORE-BI, RIGIM, SeCoGIS and WISM. The workshops cover different conceptual modeling topics, from requirements, goal and service modeling, to evolution and change management, to non-conventional data access, and they span a wide range of domains including Web information systems, geographical information systems, business intelligence, data-intensive computing.

Volume 38 - Supplement 23: Algorithms for Designing Multimedia Storage Servers to Models and Architectures. Covering more than basic computer commands and procedures, this encyclopaedia summarizes how technology has developed, the future of computer programs and applications, and the significance of computer components. Following an introduction and overview, there are approximately 750 to 800 entries.

This book constitutes the proceedings of the 7th International Conference on Intelligence

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Science and Big Data Engineering, IScIDE 2017, held in Dalian, China, in September 2017. The 48 full papers and 14 short papers presented in this volume were carefully reviewed and selected from 121 submissions. They deal with statistics and learning; deep neural networks; faces and people; objects; classification and clustering; imaging; biomedical signal processing; and recommendation.

Medical imaging has transformed the ways in which various conditions, injuries, and diseases are identified, monitored, and treated. As various types of digital visual representations continue to advance and improve, new opportunities for their use in medical practice will likewise evolve. Medical Imaging: Concepts, Methodologies, Tools, and Applications presents a compendium of research on digital imaging technologies in a variety of healthcare settings. This multi-volume work contains practical examples of implementation, emerging trends, case studies, and technological innovations essential for using imaging technologies for making medical decisions. This comprehensive publication is an essential resource for medical practitioners, digital imaging technologists, researchers, and medical students.

Cooper demonstrates how the lure of the open air, from rooftop schoolrooms to open-air theaters to the front porch, challenged air conditioning. Americans were slow to give up the social rituals of hot-weather living - the cold drink, the cool clothes, the summer vacation - for the comforts of either the window air conditioner or the central system.

This book presents selected peer-reviewed papers from the International Conference on Artificial Intelligence and Data Engineering (AIDE 2019). The

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topics covered are broadly divided into four groups: artificial intelligence, machine vision and robotics, ambient intelligence, and data engineering. The book discusses recent technological advances in the emerging fields of artificial intelligence, machine learning, robotics, virtual reality, augmented reality, bioinformatics, intelligent systems, cognitive systems, computational intelligence, neural networks, evolutionary computation, speech processing, Internet of Things, big data challenges, data mining, information retrieval, and natural language processing. Given its scope, this book can be useful for students, researchers, and professionals interested in the growing applications of artificial intelligence and data engineering.

This book provides a principled approach to classification using the available data in a model which combines information from the social network and the healthcare models. It presents studies from leading researchers and practitioners focusing on the current challenges, directions, trends and opportunities associated with healthcare delivery systems and their supporting wireless and mobile health technologies. mHealth Ecosystems and Social Networks in Healthcare is divided into two parts. Part I covers the area of mHealth Ecosystems. Chapters include topics on adoption of cloud based mHealth services, the socio-economic impact of mHealth, as well as self-management of

health and disease. In Part II, Social Networks in Healthcare are highlighted. Chapters cover social media and patient support, virtual knowledge sharing and knowledge management and also web-based applications in health care. Ultimately this book is an excellent source of comprehensive knowledge and literature on the topics of mobile health ecosystems and social networks in healthcare.

This book presents the index and query techniques on road network and moving objects which are limited to road network. Here, the road network of non-Euclidean space has its unique characteristics such that two moving objects may be very close in a straight line distance. The index used in two-dimensional Euclidean space is not always appropriate for moving objects on road network. Therefore, the index structure needs to be improved in order to obtain suitable indexing methods, explore the shortest path and acquire nearest neighbor query and aggregation query methods under the new index structures. Chapter 1 of this book introduces the present situation of intelligent traffic and index in road network, Chapter 2 introduces the relevant existing spatial indexing methods. Chapter 3-5 focus on several issues of road network and query, they involves: traffic road network models (see Chapter 3), index structures (see Chapter 4) and aggregate query methods (see Chapter 5). Finally, in Chapter 6, the book briefly

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describes the applications and the development of intelligent transportation in the future.

The two volumes LNCS 11935 and 11936 constitute the proceedings of the 9th International Conference on Intelligence Science and Big Data Engineering, IScIDE 2019, held in Nanjing, China, in October 2019. The 84 full papers presented were carefully reviewed and selected from 252 submissions. The papers are organized in two parts: visual data engineering; and big data and machine learning. They cover a large range of topics including information theoretic and Bayesian approaches, probabilistic graphical models, big data analysis, neural networks and neuro-informatics, bioinformatics, computational biology and brain-computer interfaces, as well as advances in fundamental pattern recognition techniques relevant to image processing, computer vision and machine learning.

For any organization to be successful, it must operate in such a manner that knowledge and information, human resources, and technology are continually taken into consideration and managed effectively. Business concepts are always present regardless of the field or industry – in education, government, healthcare, not-for-profit, engineering, hospitality/tourism, among others. Maintaining organizational awareness and a strategic frame of mind is critical to meeting

goals, gaining competitive advantage, and ultimately ensuring sustainability. The Encyclopedia of Organizational Knowledge, Administration, and Technology is an inaugural five-volume publication that offers 193 completely new and previously unpublished articles authored by leading experts on the latest concepts, issues, challenges, innovations, and opportunities covering all aspects of modern organizations. Moreover, it is comprised of content that highlights major breakthroughs, discoveries, and authoritative research results as they pertain to all aspects of organizational growth and development including methodologies that can help companies thrive and analytical tools that assess an organization's internal health and performance. Insights are offered in key topics such as organizational structure, strategic leadership, information technology management, and business analytics, among others. The knowledge compiled in this publication is designed for entrepreneurs, managers, executives, investors, economic analysts, computer engineers, software programmers, human resource departments, and other industry professionals seeking to understand the latest tools to emerge from this field and who are looking to incorporate them in their practice. Additionally, academicians, researchers, and students in fields that include but are not limited to business, management science, organizational development, entrepreneurship, sociology, corporate psychology, computer

science, and information technology will benefit from the research compiled within this publication.

The 2016 International Conference on Automotive Engineering, Mechanical and Electrical Engineering (AEMEE 2016) was held December 9-11, 2016 in Hong Kong, China. AEMEE 2016 was a platform for presenting excellent results and new challenges facing the fields of automotive, mechanical and electrical engineering. Automotive, Mechanical and Electrical Engineering brings together a wide range of contributions from industry and governmental experts and academics, experienced in engineering, design and research. Papers have been categorized under the following headings: Automotive Engineering and Rail Transit Engineering. Mechanical, Manufacturing, Process Engineering. Network, Communications and Applied Information Technologies. Technologies in Energy and Power, Cell, Engines, Generators, Electric Vehicles. System Test and Diagnosis, Monitoring and Identification, Video and Image Processing. Applied and Computational Mathematics, Methods, Algorithms and Optimization. Technologies in Electrical and Electronic, Control and Automation. Industrial Production, Manufacturing, Management and Logistics.

Mental health is a growing field, but one still limited by a lack of prior research and challenged by increased demand for new solutions and treatments. Mobile

and web-based technologies have the potential to fill some of the gaps. *Advanced Technological Solutions for E-Health and Dementia Patient Monitoring* provides comprehensive coverage of issues in patient health and support from the perspectives of doctors, nurses, patients, and caregivers. With its focus on challenges and opportunities, as well as future research in the field, this book is a vital reference for researchers, scholars, advanced students, software developers, managers, and stakeholders working at the forefront of e-health systems.

This book presents pattern-based problem-solving methods for a variety of machine learning and data analysis problems. The methods are all based on techniques that exploit the power of group differences. They make use of group differences represented using emerging patterns (aka contrast patterns), which are patterns that match significantly different numbers of instances in different data groups. A large number of applications outside of the computing discipline are also included. Emerging patterns (EPs) are useful in many ways. EPs can be used as features, as simple classifiers, as subpopulation signatures/characterizations, and as triggering conditions for alerts. EPs can be used in gene ranking for complex diseases since they capture multi-factor interactions. The length of EPs can be used to detect anomalies, outliers, and

novelties. Emerging/contrast pattern based methods for clustering analysis and outlier detection do not need distance metrics, avoiding pitfalls of the latter in exploratory analysis of high dimensional data. EP-based classifiers can achieve good accuracy even when the training datasets are tiny, making them useful for exploratory compound selection in drug design. EPs can serve as opportunities in opportunity-focused boosting and are useful for constructing powerful conditional ensembles. EP-based methods often produce interpretable models and results. In general, EPs are useful for classification, clustering, outlier detection, gene ranking for complex diseases, prediction model analysis and improvement, and so on. EPs are useful for many tasks because they represent group differences, which have extraordinary power. Moreover, EPs represent multi-factor interactions, whose effective handling is of vital importance and is a major challenge in many disciplines. Based on the results presented in this book, one can clearly say that patterns are useful, especially when they are linked to issues of interest. We believe that many effective ways to exploit group differences' power still remain to be discovered. Hopefully this book will inspire readers to discover such new ways, besides showing them existing ways, to solve various challenging problems.

Data Analysis, Data Handling and Business Intelligence are research areas at

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the intersection of computer science, artificial intelligence, mathematics, and statistics. They cover general methods and techniques that can be applied to a vast set of applications such as in marketing, finance, economics, engineering, linguistics, archaeology, musicology, medical science, and biology. This volume contains the revised versions of selected papers presented during the 32nd Annual Conference of the German Classification Society (Gesellschaft für Klassifikation, GfKI). The conference, which was organized in cooperation with the British Classification Society (BCS) and the Dutch/Flemish Classification Society (VOC), was hosted by Helmut-Schmidt-University, Hamburg, Germany, in July 2008.

This book constitutes the thoroughly refereed post-conference proceedings of the Second International Conference on Data Engineering and Management, ICDEM 2010, held in Tiruchirappalli, India, in July 2010. The 46 revised full papers presented together with 1 keynote paper and 2 tutorial papers were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on Digital Library; Knowledge and Multimedia; Data Management and Knowledge Extraction; Natural Language Processing; Workshop on Data Mining with Graphs and Matrices.

The areas we deal with in biochemical engineering have expanded to include

many various organisms and humans. This book has gathered together the information of these expanded areas in biochemical engineering in Japan. These two volumes are composed of 15 chapters on microbial cultivation techniques, metabolic engineering, recombinant protein production by transgenic avian cells to biomedical engineering including tissue engineering and cancer therapy. Hopefully, these volumes will give readers a glimpse of the past and also a view of what may happen in biochemical engineering in Japan.

Advancements in technology have allowed for the creation of new tools and innovations that can improve different aspects of life. These applications can be utilized across different technological platforms. *Application Development and Design: Concepts, Methodologies, Tools, and Applications* is a comprehensive reference source for the latest scholarly material on trends, techniques, and uses of various technology applications and examines the benefits and challenges of these computational developments. Highlighting a range of pertinent topics such as software design, mobile applications, and web applications, this multi-volume book is ideally designed for researchers, academics, engineers, professionals, students, and practitioners interested in emerging technology applications.

This book constitutes the thoroughly refereed post-conference proceedings of the 4th International Conference on Intelligence Science and Big Data Engineering,

IScIDE 2013, held in Beijing, China, in July/August 2013. The 111 papers presented were carefully peer-reviewed and selected from 390 submissions. Topics covered include information theoretic and Bayesian approaches; probabilistic graphical models; pattern recognition and computer vision; signal processing and image processing; machine learning and computational intelligence; neural networks and neuro-informatics; statistical inference and uncertainty reasoning; bioinformatics and computational biology and speech recognition and natural language processing.

This two volume set LNCS 9261 and LNCS 9262 constitutes the refereed proceedings of the 26th International Conference on Database and Expert Systems Applications, DEXA 2015, held in Valencia, Spain, September 1-4, 2015. The 40 revised full papers presented together with 32 short papers, and 2 keynote talks, were carefully reviewed and selected from 125 submissions. The papers discuss a range of topics including: temporal, spatial and high dimensional databases; semantic Web and ontologies; modeling, linked open data; NoSQL, NewSQL, data integration; uncertain data and inconsistency tolerance; database system architecture; data mining, query processing and optimization; indexing and decision support systems; modeling, extraction, social networks; knowledge management and consistency; mobility, privacy and

security; data streams, Web services; distributed, parallel and cloud databases; information retrieval; XML and semi-structured data; data partitioning, indexing; data mining, applications; WWW and databases; data management algorithms. These volumes also include accepted papers of the 8th International Conference on Data Management in Cloud, Grid and P2P Systems, Globe 2015, held in Valencia, Spain, September 2, 2015. The 8 full papers presented were carefully reviewed and selected from 13 submissions. The papers discuss a range of topics including: MapReduce framework: load balancing, optimization and classification; security, data privacy and consistency; query rewriting and streaming.

This volume brings together selected contributed papers presented at the International Conference of Computational Methods in Science and Engineering (ICCMSE 2006), held in Chania, Greece, October 2006. The conference aims to bring together computational scientists from several disciplines in order to share methods and ideas. The ICCMSE is unique in its kind. It regroups original contributions from all fields of the traditional Sciences, Mathematics, Physics, Chemistry, Biology, Medicine and all branches of Engineering. It would be perhaps more appropriate to define the ICCMSE as a conference on computational science and its applications to science and engineering. Topics of

general interest are: Computational Mathematics, Theoretical Physics and Theoretical Chemistry. Computational Engineering and Mechanics, Computational Biology and Medicine, Computational Geosciences and Meteorology, Computational Economics and Finance, Scientific Computation. High Performance Computing, Parallel and Distributed Computing, Visualization, Problem Solving Environments, Numerical Algorithms, Modelling and Simulation of Complex System, Web-based Simulation and Computing, Grid-based Simulation and Computing, Fuzzy Logic, Hybrid Computational Methods, Data Mining, Information Retrieval and Virtual Reality, Reliable Computing, Image Processing, Computational Science and Education etc. More than 800 extended abstracts have been submitted for consideration for presentation in ICCMSE 2005. From these 500 have been selected after international peer review by at least two independent reviewers.

The two-volume set LNCS 9242 + 9243 constitutes the proceedings of the 5th International Conference on Intelligence Science and Big Data Engineering, IScIDE 2015, held in Suzhou, China, in June 2015. The total of 126 papers presented in the proceedings was carefully reviewed and selected from 416 submissions. They deal with big data, neural networks, image processing, computer vision, pattern recognition and graphics, object detection,

dimensionality reduction and manifold learning, unsupervised learning and clustering, anomaly detection, semi-supervised learning.

Coherence of the information world is needed to approve technology concerning data sharing. This book gives to a wide range of readers the possibility to know what problems exist in the field. An international group of experts discuss the situations in their practices concerning the data exchange. Bio information, education protocols, and investigation of data bases gather at different information resources. These data are needed for protection, invariability and open access. In many cases, opposite goals are encountered and it is important to solve complex problems. The authors of the chapters found within this book give their solutions to different problems. These tools and methods have been described in different conditions of locality (from the developed to the developing world) and domains of practice (from art and research to government and schooling). This book is founded on many sources, such as books, papers, reports, data bases, legislative acts, etc. The editorial board and editors hope that this book will become a table book for readers and that they will often refer to it.

This book constitutes the proceedings of the third Sino-foreign-interchange Workshop on Intelligence Science and Intelligent Data Engineering, IScIDE 2012,

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held in Nanjing, China, in October 2012. The 105 papers presented were carefully peer-reviewed and selected from 429 submissions. Topics covered include pattern recognition; computer vision and image processing; machine learning and computational intelligence; knowledge discovery, data mining, and web mining; graphics and computer visualization; and multimedia processing and applications.

The two volumes set, CCIS 383 and 384, constitutes the refereed proceedings of the 14th International Conference on Engineering Applications of Neural Networks, EANN 2013, held on Halkidiki, Greece, in September 2013. The 91 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers describe the applications of artificial neural networks and other soft computing approaches to various fields such as pattern recognition-predictors, soft computing applications, medical applications of AI, fuzzy inference, evolutionary algorithms, classification, learning and data mining, control techniques-aspects of AI evolution, image and video analysis, classification, pattern recognition, social media and community based governance, medical applications of AI-bioinformatics and learning.

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