Han Kamber Data Mining Concepts 3rd Edition

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Logistik im Wandel der Zeit – Von der Produktionssteuerung zu vernetzten Supply Chains Meike Schröder 2019-03-21 Die Festschrift für Wolfgang Kersten zum 60. Geburtstag enthält 41 Beiträge, die seine Schüler und Schülerinnen, Kolleginnen und Kollegen sowie Freunde ihm zu Ehren gewidmet haben. Sie spiegeln die weiten interdisziplinären Forschungsfelder Wolfgang Kerstens wider, die von Supply Chain (Risiko-) Management, Produktions- und Logistikmanagement, Technologie- und Prozessinnovationen, Digitalisierung und Industrie 4.0, Nachhaltigkeit sowie angewandten Managementmethoden geprägt sind. ?

Intelligent Systems for Stability Assessment and Control of Smart Power Grids Yan Xu 2020-12-11 Power systems are evolving towards the Smart Grid paradigm, featured by large-scale integration of renewable energy resources, e.g. wind and solar power, deeper participation of demand side, and enhanced interaction with electric vehicles. While these emerging elements are inherently stochastic in nature, they are creating a challenge to the system's stability and its control. In this context, conventional analysis tools are becoming less effective, and necessitate the use alternative tools that are able to deal with the high uncertainty and variability in the smart grid. Smart Grid initiatives have facilitated wide-spread deployment of advanced sensing and communication infrastructure, e.g. phasor measurement units at grid level and smart meters at household level, which collect tremendous amount of data in various time and space scales. How to fully utilize the data and extract useful knowledge from them, is of great importance and value to support the advanced stability assessment and control of the smart grid. The intelligent system strategy has been identified as an effective approach to meet the above needs. This book presents the cutting-edge intelligent system techniques and their applications for stability assessment and control of power systems. The major topics covered in this book are: Intelligent system design and algorithms for on-line stability assessment, which aims to use steady-state operating variables to achieve fast stability assessment for credible contingencies. Intelligent system design and algorithms for preventive stability control, which aims at transparent and interpretable decision-making on preventive control actions to manipulate system operating condition against possible contingencies. Intelligent system design and algorithms for real-time stability prediction, which aims to use synchronized measurements to foresee the stability status under an ongoing disturbance. Intelligent system design and algorithms for emergency stability control, which aims at fast decision-making on stability control actions at emergency stage where instability is propagating. Methodologies and algorithms for improving the robustness of intelligent systems against missing-data issues. This book is a reference and guide for researchers, students, and engineers who seek to study and design intelligent systems to resolve stability assessment and control problems in the smart grid age.

Beobachtungsmöglichkeiten im Domain Name System Dominik Herrmann 2016-03-04 Dominik Herrmann zeigt, dass die Betreiber von Nameservern, die im Internet zur Auflösung von Domainnamen in IP-Adressen verwendet werden, das Verhalten ihrer Nutzer detaillierter nachvollziehen können als bislang gedacht. Insbesondere können sie maschinelle Lernverfahren einsetzen, um einzelne Internetnutzer an ihrem charakteristischen Verhalten wiederzuerkennen und über lange Zeiträume unbemerkt zu überwachen. Etablierte Verfahren eignen sich allerdings nicht zur Anonymisierung der Namensauflösung. Daher schlägt der Autor neue Techniken zum Selbstdatenschutz vor und gibt konkrete Handlungsempfehlungen.

Handbook of Research on Automated Feature Engineering and Advanced Applications in Data Science Panda, Mrutyunjaya 2021-01-08 In today's digital world, the huge amount of data being generated is unstructured, messy, and chaotic in nature. Dealing with such data, and attempting to unfold the meaningful information, can be a challenging task. Feature engineering is a process to transform such data into a suitable form that better assists with interpretation and visualization. Through this method, the transformed data is more transparent to the machine learning models, which in turn causes better prediction and analysis of results. Data science is crucial for the data scientist to assess the trade-offs of their decisions regarding the effectiveness of the machine learning model implemented. Investigating the demand in this area today and in the future is a necessity. The Handbook of Research on Automated Feature Engineering and Advanced Applications in Data Science provides an in-depth analysis on both the theoretical and the latest empirical research findings on how features can be extracted and transformed from raw data. The chapters will introduce feature engineering and the recent concepts, methods, and applications with the use of various data types, as well as examine the latest machine learning applications on the data. While highlighting topics such as detection, tracking, selection techniques, and prediction models using data science, this book is ideally intended for research scholars, big data scientists, project developers, data analysts, and computer scientists along with practitioners, researchers, academicians, and students interested in feature engineering and its impact on data.

Data Mining Jiawei Han 2022-10-15 Data Mining: Concepts and Techniques, Fourth Edition provides the theories and methods for processing gathered data or information to be used in various applications. Specifically, it explains data mining and the tools used in discovering knowledge from the collected data, known as KDD. It focuses on the feasibility, usefulness, effectiveness, and scalability of techniques of large data sets. After describing data mining, the authors explain the methods of knowing, preprocessing, processing, and warehousing data. They then present information about data warehouses, online analytical processing (OLAP), and data cube technology. Then, the methods involved in mining frequent patterns, associations, and correlations for large data sets are described. The book details the methods for data classification and introduces the concepts and methods for data clustering. The remaining chapters discuss the outlier detection and the trends, applications, and research frontiers in data mining. This book is intended for computer science students, application developers, business professionals, and researchers who seek information on data mining. Presents dozens of algorithms and implementation examples, all in pseudo-code and suitable for use in real-world, large-scale data mining projects Addresses advanced topics such as mining object-relational databases, spatial databases, multimedia databases, time-series databases, text databases, the World Wide Web, and applications in several fields Provides a comprehensive, practical look at the concepts and techniques needed to get the most out of your data

Digitale Transformation der Wertschöpfung Herbert Jodlbauer 2017-11-15 Digitalisierung und Industrie 4.0 werden häufig nur als technische Herausforderungen verstanden. Der zentrale Punkt ist allerdings, dass die Digitalisierung ganze Wertschöpfungsketten und die gesamte Wirtschaft radikal verändern wird. Die Kunden, die Weckung neuer Kundenbedürfnisse und die Schaffung eines echten Kundenmehrwertes werden dabei im Zentrum stehen. Kommunikation, Planung, Steuerung und Entscheidungsfindung werden auf völlig neue Beine gestellt: datengetrieben, ohne Zeitverzögerung, global wirkend. Materielle Güter werden von Dienstleistungen und vermehrt von digitalen Diensten als Hauptumsatzträger verdrängt. Situative, der jeweiligen Kundensituation angepasste Services und intelligente Produkte werden in dynamischen Wertschöpfungsnetzwerken konfiguriert und dem Kunden bereitgestellt. Dieses Fachbuch spannt den Bogen von den neuen Technologien wie Internet of Things oder Big Data und deren wirtschaftlicher Nutzung bis hin zur konsequenten Kunden- und Dienstleistungsorientierung sowie Geschäftsmodellinnovation.

An Introduction To High Content Screening Steven A. Haney 2015-01-07 Using a collaborative and interdisciplinary author base with experience in the pharmaceutical industry and academia, this book is a practical resource for high content (HC) techniques. Instructs readers on the fundamentals of high content screening (HCS) techniques Focuses on practical and widely–used techniques like image processing and multiparametric assays Breaks down HCS into individual modules for training and connects them at the end Includes a tutorial chapter that works through sample HCS assays, glossary, and detailed appendices

Applied Data Mining Guandong Xu 2013-06-17 Data mining has witnessed substantial advances in recent decades. New research questions and practical challenges have arisen from emerging areas and applications within the various fields closely related to human daily life, e.g. social media and social networking. This book aims to bridge the gap between traditional data mining and the latest advances in newly emerging information services. It explores the extension of well-studied algorithms and approaches into these new research arenas.

Latin American Women and Research Contributions to the IT Field Negrón, Adriana Peña Pérez 2020-12-18 Although the effort to involve women in engineering has risen in recent years with the creation of new initiatives and the promotion of inclusion in technical disciplines, the active participation of women in engineering professions is continuously lower than expected. While the need for engineers appears to be constantly increasing, women still do not fill most of this role and have a long way to go to even reach an equal split in the field. This gender gap has a significant impact how women in the STEM fields are perceived as well as their experiences in their education and careers. When it comes to Latin American women in IT, their contribution to science can go unnoticed, their participation levels in these fields are very low, and they often occupy lower-level positions than their male counterparts. These issues need to be discussed, and the experiences of women who work in the field must be shared. Latin American Women and Research Contributions to the IT Field highlights the important role of Latin American women in IT by collecting and disseminating their frontier-research contributions in order to provide more visibility and inspire greater participation of Latin American women within the major field of computer science. With chapters contributed by female authors from eight Latin American and Caribbean countries, the book provides a deep analysis of these women's trajectory paths to high quality theoretical and applied relevant research in computer science and IT. While highlighting areas such as inclusivity and STEM education, along with advancements and achievements in topics that include nonverbal interaction in virtual reality, fuzzy logic applications in education, and ant colony optimization, this book is ideal for professionals, academics, students, and researchers working in the fields of information technologies and computer science as well as those interested in gender and women's studies.

Data Mining: Concepts and Techniques Jiawei Han 2011-06-09 Data Mining: Concepts and Techniques provides the concepts and techniques in processing gathered data or information, which will be used in various applications. Specifically, it explains data mining and the tools used in discovering knowledge from the collected data. This book is referred as the knowledge discovery from data (KDD). It focuses on the feasibility, usefulness, effectiveness, and scalability of techniques of large data sets. After describing data mining, this edition explains the methods of knowing, preprocessing, processing, and warehousing data. It then presents information about data warehouses, online analytical processing (OLAP), and data cube technology. Then, the methods involved in mining frequent patterns, associations, and correlations for large data sets are described. The book details the methods for data classification and introduces the concepts and methods for data clustering. The remaining chapters discuss the outlier detection and the trends, applications, and research frontiers in data mining. This book is intended for Computer Science students, application developers, business professionals, and researchers who seek information on data mining. Presents dozens of algorithms and implementation examples, all in pseudo-code and suitable for use in real-world, large-scale data mining projects Addresses advanced topics such as mining object-relational databases, spatial databases, multimedia databases, time-series databases, text databases, the World Wide Web, and applications in several fields Provides a comprehensive, practical look at the concepts and techniques you need to get the most out of your data

Data Warehouse Technologien Köppen / Saake / Sattler 2014 Detailliert werden in diesem Buch sowohl der Aufbau als auch die Nutzung von Data-Warehouse-Systemen beleuchtet. Dabei stehen Modellierungskonzepte und die Thematik der multidimensionalen Anfragen im Vordergrund. Zudem werden Interna wichtiger Systemlösungen von Oracle, IBM und Microsoft anhand zahlreicher Beispiele erläutert.

Supply Management Research Christoph Bode 2019-08-23 Dieses Buch stellt wissenschaftliche Fortschritte in den Bereichen Einkauf, Materialwirtschaft, Supply Chain Management und Logistik vor. Es ist zugleich Tagungsband des an der Universität Mannheim durchgeführten 12. Wissenschaftlichen Symposiums "Supply Management" des Bundesverbands Materialwirtschaft, Einkauf und Logistik (BME) e.V. Wissenschaftliche und anwendungsnahe Beiträge fördern die qualifizierte Auseinandersetzung mit der Thematik und bereichern den Dialog zwischen Wissenschaft und Praxis.

Cyber Risks, Social Media and Insurance: A Guide to Risk Assessment and Management 8/2022-8/2023 Edition Carrie E. Cope 2022-07-29 The publication provides unique and indispensable guidance to all in the insurance industry, other businesses and their counsel in identifying and understanding the risks -- notably including cyber risks -- they face by using social media in the business world and mitigating those risks through a compilation of best practices by industry experts and rulings by courts and regulatory authorities. It features analyses of pertinent policies, statutes, and cases. A few of the Highlights in the 2022-2023 Edition include: • Discussion of developing litigation against social media companies for censoring of online postings. • Discussion of developing litigation against social media companies for censoring of online postings. • Discussion of how informal social media discovery is the new norm and may also be a dereliction of an attorney's duty if an attorney fails to perform social media searches. • Discussion of recent developments in underwriting for cyber and social media risks. • Analysis of recent case law addressing insurers' utilization of price optimization. • Analysis of recent case law concerning liability in connection with the use of social media. • Discussion of the Strengthening American Cybersecurity Act, which brings in sweeping changes to the federal legal landscape regarding cybersecurity and cyber incident response within critical infrastructure sectors. • Assessing the impact of Artificial Intelligence risks on the insurance industry. • Examining developments in emerging technologies, including virtual reality and augmented reality, and their impact on insurance. • Discussion of the Cyberspace Solarium Commission and the "CSC 2.0 Project." • Discussion of anticipated changes to the National Labor Relations Board's policies for employers' work rules concerning employee use of social media.

Web Semantics for Textual and Visual Information Retrieval Singh, Aarti 2017-02-22 Modern society exists in a digital era in which high volumes of multimedia information exists. To optimize the management of this data, new methods are emerging for more efficient information retrieval. Web Semantics for Textual and Visual Information Retrieval is a pivotal reference source for the latest academic research on embedding and associating semantics with multimedia information to improve data retrieval techniques. Highlighting a range of pertinent topics such as automation, knowledge discovery, and social networking, this book is ideally designed for researchers, practitioners, students, and professionals interested in emerging trends in information retrieval.

Handbook of Research on Advanced Data Mining Techniques and Applications for Business Intelligence Trivedi, Shrawan Kumar 2017-02-14 The development of business intelligence has enhanced the visualization of data to inform and facilitate business management and strategizing. By implementing effective data-driven techniques, this allows for advance reporting tools to cater to company-specific issues and challenges. The Handbook of Research on Advanced Data Mining Techniques and Applications for Business Intelligence is a key resource on the latest advancements in business applications and the use of mining software solutions to achieve optimal decision-making and risk management results. Highlighting innovative studies on data warehousing, business activity monitoring, and text mining, this publication is an ideal reference source for research scholars, management faculty, and practitioners.

Konzeption und prototypische Implementierung eines entscheidungsunterstützenden IT-Systems für den Einsatz cyber-physischer Produktionssysteme Jens Felix Lachenmaier 2019-06-14 Unter dem Schlagwort Industrie 4.0 werden derzeit cyber-physische Systeme für die Produktion entwickelt, um die Wettbewerbsfähigkeit der deutschen Industrie sicherzustellen. Cyber-physische Produktionssysteme führen durch eine Kopplung der physischen Abläufe in der Produktion mit deren Repräsentanz in Software zu einer hohen Flexibilität bei gleichzeitig steigender Ressourceneffizienz und -produktivität. Ihr Einsatz führt zu gravierenden Veränderungen in der Wertschöpfung industrieller Unternehmen, die weit über die Produktion hinausreichen. Die vorliegende interdisziplinäre Arbeit untersucht an der Schnittstelle zwischen Betriebswirtschaftslehre, Ingenieurwissenschaften und Wirtschaftsinformatik im Rahmen einer Case Study in der Automobilbranche Veränderungen und Potenziale, die sich in der Prozess- und Produktionsplanung durch den Einsatz cyber-physischer Produktionssysteme ergeben. Um die Entscheidungen in der Prozess- und Produktionsplanung weiterhin wirksam und wirtschaftlich zu unterstützen, sind angepasste Informationssysteme erforderlich. Ziel der Arbeit ist es daher, ein Konzept für ein IT-System zur Entscheidungsunterstützung zu entwickeln, prototypisch umzusetzen und im Praxisumfeld zu evaluieren. Dabei orientiert sich die Arbeit an der gestaltungsorientierten Wirtschaftsinformatik. Das erarbeitete Fachkonzept umfasst unter anderem Daten- und Prozessmodelle zur integrierten Analyse technischer Produktmerkmale aus Computer-Aided-Design-Systemen (CAD-Systemen) und Prozessdaten aus der Produktion. Das generische Konzept ist für den konkreten Unternehmenseinsatz anpassbar und kann in bestehende IT-Landschaften eingebunden werden. Die Arbeit zeigt schließlich konkrete Empfehlungen für Unternehmen auf sowie Anknüpfungspunkte für zukünftige Forschungsarbeiten.

Database Modeling and Design Toby J. Teorey 2011-02-10 Database Modeling and Design, Fifth Edition, focuses on techniques for database design in relational database systems. This extensively revised fifth edition features clear explanations, lots of terrific examples and an illustrative case, and practical advice, with design rules that are applicable to any SQL-based system. The common examples are based on real-life experiences and have been thoroughly class-tested. This book is immediately useful to anyone tasked with the creation of data models for the integration of large-scale enterprise data. It is ideal for a stand-alone data management course focused on logical database design, or a supplement to an introductory text for introductory database management. In-depth detail and plenty of real-world, practical examples throughout Loaded with design rules and illustrative case studies that are applicable to any SQL, UML, or XML-based system Immediately useful to anyone tasked with the

creation of data models for the integration of large-scale enterprise data.

Modern Techniques for Agricultural Disease Management and Crop Yield Prediction Pradeep, N. 2019-08-16 Since agriculture is one of the key parameters in assessing the gross domestic product (GDP) of any country, it has become crucial to transition from traditional agricultural practices to smart agriculture. New agricultural technologies provide numerous opportunities to maximize crop yield by recognizing and analyzing diseases and other natural variables that may affect it. Therefore, it is necessary to understand how computer-assisted technologies can best be utilized and adopted in the conversion to smart agriculture. Modern Techniques for Agricultural Disease Management and Crop Yield Prediction is an essential publication that widens the spectrum of computational methods that can aid in agriculture disease management, weed detection, and crop yield prediction. Featuring coverage on a wide range of topics such as soil and crop sensors, swarm robotics, and weed detection, this book is ideally designed for environmentalists, farmers, botanists, agricultural engineers, computer engineers, scientists, researchers, practitioners, and students seeking current research on technology and techniques for agricultural diseases and predictive trends.

A Practical Guide to Data Mining for Business and Industry Andrea Ahlemeyer-Stubbe 2014-05-12 Data mining is well on its way to becoming a recognized discipline in the overlapping areas of IT, statistics, machine learning, and AI. Practical Data Mining for Business presents a user-friendly approach to data mining methods, covering the typical uses to which it is applied. The methodology is complemented by case studies to create a versatile reference book, allowing readers to look for specific methods as well as for specific applications. The book is formatted to allow statisticians, computer scientists, and economists to cross-reference from a particular application or method to sectors of interest.

Computational Science and Its Applications – ICCSA 2020 Osvaldo Gervasi 2020-09-30 The seven volumes LNCS 12249-12255 constitute the refereed proceedings of the 20th International Conference on Computational Science and Its Applications, ICCSA 2020, held in Cagliari, Italy, in July 2020. Due to COVID-19 pandemic the conference was organized in an online event. Computational Science is the main pillar of most of the present research, industrial and commercial applications, and plays a unique role in exploiting ICT innovative technologies. The 466 full papers and 32 short papers presented were carefully reviewed and selected from 1450 submissions. Apart from the general track, ICCSA 2020 also include 52 workshops, in various areas of computational sciences, ranging from computational science technologies, to specific areas of computational sciences, such as software engineering, security, machine learning and artificial intelligence, blockchain technologies, and of applications in many fields.

Mikroklänge – Plinks Felix Christian Thiesen 2021-05-19 Ein vertrautes Musikstück erkennen wir schon nach einer Zehntelsekunde. Die Plink-Forschung untersucht diese Hörleistung anhand kurzer Ausschnitte aus Popsongs. Welche Informationsanteile für deren Erkennung maßgeblich sind, ist bislang nicht näher betrachtet worden. Felix Thiesen untersucht erstmals die Bedeutung intra- und extramusikalischer Parameter. Zwei Hauptstudien mit etwa 1000 Teilnehmenden zeigen starke Einflüsse der Art und Anzahl vorhandener Arrangementbestandteile. Auch stimmlichen Informationsanteilen und der Entropie des Materials kommt große Bedeutung zu. Mit der Einordnung der Befunde in ein Kohortenmodell mikrozeitlicher Musikwahrnehmung stellt der Autor eine Verbindung zu etablierten Konzepten der Sprachverarbeitung her.

Managing and Mining Sensor Data Charu C. Aggarwal 2013-01-15 Advances in hardware technology have lead to an ability to collect data with the use of a variety of sensor technologies. In particular sensor notes have become cheaper and more efficient, and have even been integrated into day-to-day devices of use, such as mobile phones. This lead to a much larger scale of applicability and mining of sensor data sets. The human-centric aspect of sensor data has created tremendous opportunities in integrating social aspects of sensor data collection into the mining process. Managing and Mining Sensor Data is a contributed volume by prominent leaders in this field, targeting advanced-level students in computer science as a secondary text book or reference. Practitioners and researchers working in this field will also find this book useful.

Applications and Developments in Semantic Process Mining Okoye, Kingsley 2020-04-10 As technology becomes increasingly intelligent, various factors within the field of data science are seeing significant transformation. Process analysis is one area that is undergoing substantial development due to the implementation of semantic reasoning and web technologies. The congruence of these two systems has created various applications and developments in data processing and analysis across several professional fields. Applications and Developments in Semantic Process Mining is an essential reference source that discusses the improvement of process mining algorithms through the implementation of semantic modeling and representation. Featuring research on topics such as domain ontologies, fuzzy modeling, and information extraction, the book takes into account the different stages of process mining and its application in real time and then expounds the classical process mining techniques to semantical preparation of the extracted models for further analysis and querying at a more abstract level. The book provides a wide-ranging idea of the application and development of semantic process mining that is expected to be beneficial and used by professionals, software and data engineers, software developers, IT experts, business owners and entrepreneurs, and process analysts.

Dialogmarketing Perspektiven 2019/2020 Deutscher Dialogmarketing Verband e.V. 2020-02-19 Der diesjährige Sammelband vereint aktuelle Fachbeiträge und Forschungsergebnisse des 14. wissenschaftlichen interdisziplinären Kongress für Dialogmarketing, den der DDV im September 2019 an der Hochschule Pforzheim veranstaltete. Wissenschaftler aus unterschiedlichen Disziplinen, die zum Dialog- und Data-Driven-Marketing forschen, wurden hier in den Dialog miteinander gebracht und konnten sich vernetzen.

Methodik zur proaktiven Integration von Data Analytics in die Serienfertigung Ulrich Tobias Bührer 2022-08-25 Im Rahmen dieser Arbeit wurde eine Methodik zur proaktiven Integration von Data Analytics in die Serienfertigung entwickelt. Diese Methodik gewährleistet ein Vorgehen, das die Identifikation und Priorisierung einer nutzenbringenden Auswahl an Data Analytics Anwendungsfällen während der frühen Phase der Entwicklung des Fertigungssystems ermöglicht und deren skalierbare Umsetzung bis zur Serienreife mit Hilfe einer geeigneten IT-Architektur unterstützt.

Web Content Mining for Analyzing Job Requirements in Online Job Advertisements Ute Heinze 2015-12-14 The analysis of job requirements is crucial for companies and job seekers. The thesis deals with developing a web content mining process for analyzing job requirements in online job advertisements. It combines methods from big data analytics, knowledge discovery in databases, data mining, web mining, and natural language processing. In the future, the web content mining process can be integrated into an overarching recruiting 4.0 framework to support decision-making processes.

Steuerung von Dialogmarketingkampagnen Benedikt Lindenbeck 2018-02-09 Benedikt Lindenbeck untersucht anhand realer Daten eines Versicherungsunternehmens, inwiefern auf Basis bestehender Kundenbeziehungen Empfehlungen für die Auswahl zu adressierender Rezipienten im Dialogmarketing abgeleitet werden können. Er entwickelt eine Methodik, die eine Kombination verschiedener statistischer Analysemethoden ermöglicht, und zeigt zudem auf, dass hierdurch eine ökonomisch vorteilhafte Auswahl zu adressierender Rezipienten möglich ist. Anlass seiner Untersuchungen ist, dass das Dialogmarketing heutzutage zahlreiche Möglichkeiten bietet, potenzielle und tatsächliche Kunden anzusprechen. Die hohen Ausgaben, die auf den Einsatz entsprechender Instrumente entfallen, lassen vor dem Hintergrund mitunter geringer Erfolgsquoten Optimierungspotenziale mit Blick auf die Steuerung entsprechender Kampagnen vermuten.

Data Mining and Analysis Mohammed J. Zaki 2014-05-12 The fundamental algorithms in data mining and analysis form the basis for the emerging field of data science, which includes automated methods to analyze patterns and models for all kinds of data, with applications ranging from scientific discovery to business intelligence and analytics. This textbook for senior undergraduate and graduate data mining courses provides a broad yet in-depth overview of data mining, integrating related concepts from machine learning and statistics. The main parts of the book include exploratory data analysis, pattern mining, clustering, and classification. The book lays the basic foundations of these tasks, and also covers cutting-edge topics such as kernel methods, high-dimensional data analysis, and complex graphs and networks. With its comprehensive coverage, algorithmic perspective, and wealth of examples, this book offers solid guidance in data mining for students, researchers, and practitioners alike.

Data Mining and Machine Learning Mohammed J. Zaki 2020-01-31 New to the second edition of this advanced text are several chapters on regression, including neural networks and deep learning.

Data Mining Jiawei Han 2011 Data Mining: Concepts and Techniques provides the concepts and techniques in processing gathered data or information, which will be used in various applications. Specifically, it explains data mining and the tools used in discovering knowledge from the collected data. This book is referred as the knowledge discovery from data (KDD). It focuses on the feasibility, usefulness, effectiveness, and scalability of techniques of large data sets. After describing data mining, this edition explains the methods of knowing, preprocessing, processing, and warehousing data. It then presents information about data warehouses, online analytical processing (OLAP), and data cube technology. Then, the methods involved in mining frequent patterns, associations, and correlations for large data sets are described. The book details the methods for data classification and introduces the concepts and methods for data clustering. The remaining chapters discuss the outlier detection and the trends, applications, and research frontiers in data mining. This book is intended for Computer Science students, application developers, business professionals, and researchers who seek information on data mining. Presents dozens of algorithms and implementation examples, all in pseudo-code and suitable for use in real-world, large-scale data mining projects Addresses advanced topics such as mining object-relational databases, spatial databases, multimedia databases, time-series databases, text databases, the World Wide Web, and applications in several fields Provides a comprehensive, practical look at the concepts and techniques you need to get the most out of your data.

Machine Learning Marco Gori 2017-11-20 Machine Learning: A Constraint-Based Approach provides readers with a refreshing look at the basic models and algorithms of machine learning, with an emphasis on current topics of interest that includes neural networks and kernel machines. The book presents the information in a truly unified manner that is based on the notion of learning from environmental constraints. While regarding symbolic knowledge bases as a collection of constraints, the book draws a path towards a deep integration with machine learning that relies on the idea of adopting multivalued logic formalisms, like in fuzzy systems. A special attention is reserved to deep learning, which nicely fits the constrained- based approach followed in this book. This book presents a simpler unified notion of regularization, which is strictly connected with the parsimony principle, and includes many solved exercises that are classified according to the Donald Knuth ranking of difficulty, which essentially consists of a mix of warm-up exercises that lead to deeper research problems. A software simulator is also included. Presents fundamental machine learning concepts, such as neural networks and kernel machines in a unified manner Provides in-depth coverage of unsupervised and semi-supervised learning Includes a software simulator for kernel machines and learning from constraints that also includes exercises to facilitate learning Contains 250 solved examples and exercises chosen particularly for their progression of difficulty from simple to complex

Contrast Data Mining Guozhu Dong 2016-04-19 A Fruitful Field for Researching Data Mining Methodology and for Solving Real-Life Problems Contrast Data Mining: Concepts, Algorithms, and Applications collects recent results from this specialized area of data mining that have previously been scattered in the literature, making them more accessible to researchers and developers in data mining and other fields. The book not only presents concepts and techniques for contrast data mining, but also explores the use of contrast mining to solve challenging problems in various scientific, medical, and business domains. Learn from Real Case Studies of Contrast Mining Applications In this volume, researchers from around the world specializing in architecture engineering, bioinformatics, computer science, medicine, and systems engineering focus on the mining and use of contrast patterns. They demonstrate many useful and powerful capabilities of a variety of contrast mining techniques and algorithms, including tree-based structures, zero-suppressed binary decision diagrams, data cube representations, and clustering algorithms. They also examine how contrast mining is used in leukemia characterization, discriminative gene transfer and microarray analysis, computational toxicology, spatial and image data classification, voting analysis, heart disease prediction, crime analysis, understanding customer behavior, genetic algorithms, and network security.

Knowledge Discovery in Databases Martin Ester 2013-03-07

Methoden psychologischer Forschung und Evaluation Rainer Westermann 2016-12-20 Für Studium und Weiterbildung werden institutionelle Rahmenbedingungen, wissenschaftstheoretische Grundlagen, methodische Gütekriterien und praktische Verfahren für empirische Untersuchungen psychologischer, evaluativer und verwandter Probleme dargestellt. Im Mittelpunkt steht die Validität und damit die Güte und Qualität von Untersuchungen wissenschaftlicher und praktischer Fragestellungen. Diese umfasst vor allem die Adäquatheit von Begriffen, deduktiven und induktiven Argumenten, kausalen Aussagen, Gesetzeshypothesen und Theorien, die Kontrolle störender Einflüsse bei Beobachtungen, Befragungen, Einschätzungen (ratings), Messungen, Tests, Experimenten, Quasi-Experimenten, Fall-Kontroll- und Einzelgruppenstudien sowie die sachgerechte Anwendung und Interpretation von statistischen Zusammenhängen und Tests, Varianz-, Regressions- und Meta-Analysen, festen, zufälligen und hierarchisierten Faktoren. Ziel ist ein tiefergehendes Verständnis wesentlicher Qualitätsmerkmale empirischer Untersuchungen, um fundiert Methoden einsetzen und Ergebnisse interpretieren zu können.

Data Mining in Dynamic Social Networks and Fuzzy Systems Bhatnagar, Vishal 2013-06-30 Many organizations, whether in the public or private sector, have begun to take advantage of the tools and techniques used for data mining. Utilizing data mining tools, these organizations are able to reveal the hidden and unknown information from available data. Data Mining in Dynamic Social Networks and Fuzzy Systems brings together research on the latest trends and patterns of data mining tools and techniques in dynamic social networks and fuzzy systems. With these improved modern techniques of data mining, this publication aims to provide insight and support to researchers and professionals concerned with the management of expertise, knowledge, information, and organizational development.

Research Anthology on Strategies for Achieving Agricultural Sustainability Management Association, Information Resources 2022-02-18 Agriculture has been an enduring human tradition key to survival and civilization. However, after the advent of industrialization and agricultural growth, the industry has been met with several challenges including pollution, land use, and food insecurity. With the agricultural industry contributing to pollution and emissions, many have found it imperative to investigate the causes and seek out solutions. The Research Anthology on Strategies for Achieving Agricultural Sustainability discusses the issues that the agricultural industry currently faces and the technological opportunities that can be explored to help protect and predict crop growth and achieve more resilient agricultural processes. It analyzes the impact of agricultural pollution and food insecurity on a global scale, but also proposes solutions to promote agricultural sustainability. Covering topics such as bio-farming, smart farming, and population growth, this book is an indispensable resource for government officials, agricultural scientists, farmers, students and professors of higher education, activist groups, researchers, and academicians.

INTRODUCTION TO DATA MINING WITH CASE STUDIES G. K. GUPTA 2014-06-28 The field of data mining provides techniques for automated discovery of valuable information from the accumulated data of computerized operations of enterprises. This book offers a clear and comprehensive introduction to both data mining theory and practice. It is written primarily as a textbook for the students of computer science, management, computer applications, and information technology. The book ensures that the students learn the major data mining techniques even if they do not have a strong mathematical background. The techniques include data pre-processing, association rule mining, supervised classification, cluster analysis, web data mining, search engine query mining, data warehousing and OLAP. To enhance the understanding of the concepts introduced, and to show how the techniques described in the book are used in practice, each chapter is followed by one or two case studies that have been published in scholarly journals. Most case studies deal with real business problems (for example, marketing, e-commerce, CRM). Studying the case studies provides the reader with a greater insight into the data mining techniques. The book also provides many examples, review questions, multiple choice questions, chapter-end exercises and a good list of references and Web resources especially those which are easy to understand and useful for students. A number of class projects have also been included.

Bioinformatics Database Systems Kevin Byron 2016-12-19 Modern biological databases comprise not only data, but also sophisticated query facilities and bioinformatics data analysis tools. This book provides an exploration through the world of Bioinformatics Database Systems. The book summarizes the popular and innovative bioinformatics repositories currently available, including popular primary genetic and protein sequence databases, phylogenetic databases, structure and pathway databases, microarray databases and boutique databases. It also explores the data quality and information integration issues currently involved with managing bioinformatics databases, including data quality issues that have been observed, and efforts in the data cleaning field. Biological data integration issues are also covered in-depth, and the book demonstrates how data integration can create new repositories to address the needs of the biological communities. It also presents typical data integration architectures employed in current bioinformatics databases. The latter part of the book covers biological data mining and biological data processing approaches using cloud-based technologies. General data mining approaches are discussed, as well as specific data mining methodologies that have been successfully deployed in biological data mining applications. Two biological data mining case studies are also included to illustrate how data, query, and analysis methods are integrated into user-friendly systems. Aimed at researchers and developers of bioinformatics database systems, the book is also useful as a supplementary textbook for a one-semester upper-level undergraduate course, or an introductory graduate bioinformatics course. About the Authors Kevin Byron is a PhD candidate in the Department of Computer Science at the New Jersey Institute of Technology. Katherine G. Herbert is Associate Professor of Computer Science at Montclair State University. Jason T.L. Wang is Professor of Bioinformatics and Computer Science at the New Jersey Institute of Technology.

Joe Celko's SQL for Smarties Joe Celko 2010-11-22 Joe Celkos SQL for Smarties: Advanced SQL Programming offers tips and techniques in advanced programming. This book is the fourth edition and it consists of 39 chapters, starting with a comparison between databases and file systems. It covers transactions and currency control, schema level objects, locating data and schema numbers, base tables, and auxiliary tables. Furthermore, procedural, semi-procedural, and declarative programming are explored in this book. The book also presents the different normal forms in database normalization, including the first, second, third, fourth, fifth, elementary key, domain-key, and Boyce-Codd normal forms. It also offers practical hints for normalization and denormalization. The book discusses different data types, such as the numeric, temporal and character data types; the different predicates; and the simple and advanced SELECT statements. In addition, the book presents virtual tables, and it discusses data partitions in queries; grouping operations; simple aggregate functions; and descriptive statistics, matrices and graphs in SQL. The book concludes with a discussion about optimizing SQL. It will be of great value to SQL programmers. Expert advice from a noted SQL authority and award-winning columnist who has given ten years service to the ANSI SQL standards committee Teaches scores of advanced techniques that can be used with any product, in any SQL environment, whether it is an SQL 92 or SQL 2008 environment Offers tips for working around deficiencies and gives insight into real-world challenges

Big Data Kuan-Ching Li 2015-09-15 As today's organizations are capturing exponentially larger amounts of data than ever, now is the time for organizations to rethink how they digest that data. Through advanced algorithms and analytics techniques, organizations can harness this data, discover hidden patterns, and use the newly acquired knowledge to achieve competitive advantages. Presenting the contributions of leading experts in their respective fields, Big Data: Algorithms, Analytics, and Applications bridges the gap between the vastness of Big Data and the appropriate computational methods for scientific and social discovery. It covers fundamental issues

about Big Data, including efficient algorithmic methods to process data, better analytical strategies to digest data, and representative applications in diverse fields, such as medicine, science, and engineering. The book is organized into five main sections: Big Data Management—considers the research issues related to the management of Big Data, including indexing and scalability aspects Big Data Processing—addresses the problem of processing Big Data across a wide range of resource-intensive computational settings Big Data Stream Techniques and Algorithms—explores research issues regarding the management and mining of Big Data in streaming environments Big Data Privacy—focuses on models, techniques, and algorithms for preserving Big Data privacy Big Data Applications—illustrates practical applications of Big Data across several domains, including finance, multimedia tools, biometrics, and satellite Big Data processing Overall, the book reports on state-of-the-art studies and achievements in algorithms, analytics, and applications of Big Data. It provides readers with the basis for further efforts in this challenging scientific field that will play a leading role in next-generation database, data warehousing, data mining, and cloud computing research. It also explores related applications in diverse sectors, covering technologies for media/data communication, elastic media/data storage, cross-network media/data fusion, and SaaS.