Handbook Of Educational Data Mining Chapman Hallcrc Data Mining And Knowledge Discovery Series

The Wiley Handbook of Global Educational ReformHandbook of Educational Data MiningHandbook of Statistical Analysis and Data Mining ApplicationsThe Handbook of Data MiningData Mining and Knowledge Discovery HandbookEducational Data MiningData Mining: Concepts and TechniquesBiological Knowledge Discovery HandbookThe Wiley Handbook of Ethnography of EducationThe SAGE Handbook of Social Media Research MethodsHandbook of Research on Knowledge Management for Contemporary Business EnvironmentsInternational Handbook of Metacognition and Learning TechnologiesThe Wiley Handbook of Cognition and AssessmentData Mining and Learning AnalyticsThe Wiley Handbook of Action Research in EducationStatistical and Machine-Learning Data MiningHandbook of Educational TheoriesThe Wiley International Handbook of Educational FoundationsBig Data in EducationThe Wiley Handbook of Educational SupervisionHandbook of Learning AnalyticsRecommender Systems for LearningThe Wiley International Handbook of Educational LeadershipThe Elements of Statistical LearningData Mining and Knowledge Discovery HandbookHandbook of Research on Instructional Systems and Educational TechnologyData Analytics Applications in EducationHandbook of Statistical Analysis and Data Mining ApplicationsEducational Data MiningHandbook

of Research on Modern Educational Technologies, Applications, and ManagementThe Data Science HandbookProgramming Collective IntelligenceHandbook of Data Mining and Knowledge DiscoveryData Mining in E-learningHandbook of Big DataThe Wiley Handbook of Christianity and EducationHandbook of Research on Big Data Storage and Visualization TechniquesData Mining and Data VisualizationMobile LearningThe Cambridge Handbook of the Learning Sciences

The Wiley Handbook of Global Educational Reform

Addresses the impacts of data mining on education and reviews applications in educational research teaching, and learning This book discusses the insights, challenges, issues, expectations, and practical implementation of data mining (DM) within educational mandates. Initial series of chapters offer a general overview of DM, Learning Analytics (LA), and data collection models in the context of educational research, while also defining and discussing data mining's four guiding principles— prediction, clustering, rule association, and outlier detection. The next series of chapters showcase the pedagogical applications of Educational Data Mining (EDM) and feature case studies drawn from Business, Humanities, Health Sciences, Linguistics, and Physical Sciences education that serve to highlight the successes and some of the limitations of data mining research applications in

educational settings. The remaining chapters focus exclusively on EDM's emerging role in helping to advance educational research—from identifying at-risk students and closing socioeconomic gaps in achievement to aiding in teacher evaluation and facilitating peer conferencing. This book features contributions from international experts in a variety of fields. Includes case studies where data mining techniques have been effectively applied to advance teaching and learning Addresses applications of data mining in educational research, including: social networking and education; policy and legislation in the classroom; and identification of at-risk students Explores Massive Open Online Courses (MOOCs) to study the effectiveness of online networks in promoting learning and understanding the communication patterns among users and students Features supplementary resources including a primer on foundational aspects of educational mining and learning analytics Data Mining and Learning Analytics: Applications in Educational Research is written for both scientists in EDM and educators interested in using and integrating DM and LA to improve education and advance educational research.

Handbook of Educational Data Mining

Created with the input of a distinguished International Board of the foremost authorities in data mining from academia and industry, The Handbook of Data Mining presents comprehensive coverage of data mining concepts and techniques.

Algorithms, methodologies, management issues, and tools are all illustrated through engaging examples and real-world

Handbook of Statistical Analysis and Data Mining Applications

The abundance of data and the rise of new quantitative and statistical techniques have created a promising area: data analytics. This combination of a culture of data-driven decision making and techniques to include domain knowledge allows organizations to exploit big data analytics in their evaluation and decision processes. Also, in education and learning, big data analytics is being used to enhance the learning process, to evaluate efficiency, to improve feedback, and to enrich the learning experience. As every step a student takes in the online world can be traced, analyzed, and used, there are plenty of opportunities to improve the learning process of students. First, data analytics techniques can be used to enhance the student' s learning process by providing real-time feedback, or by enriching the learning experience. Second, data analytics can be used to support the instructor or teacher. Using data analytics, the instructor can better trace, and take targeted actions to improve, the learning process of the student. Third, there are possibilities in using data analytics to measure the performance of instructors. Finally, for policy makers, it is often unclear how schools use their available resources to "produce" outcomes. By combining structured and unstructured data from various sources, data analytics might provide a solution for governments that

aim to monitor the performance of schools more closely. Data analytics in education should not be the domain of a single discipline. Economists should discuss the possibilities, issues, and normative questions with a multidisciplinary team of pedagogists, philosophers, computer scientists, and sociologists. By bringing together various disciplines, a more comprehensive answer can be formulated to the challenges ahead. This book starts this discussion by highlighting some economic perspectives on the use of data analytics in education. The book begins a rich, multidisciplinary discussion that may make data analytics in education seem as natural as a teacher in front of a classroom.

The Handbook of Data Mining

This cutting-edge overview explores big data and the related topic of computer code, examining the implications for education and schooling for today and the near future.

Data Mining and Knowledge Discovery Handbook

The digital age has presented an exponential growth in the amount of data available to individuals looking to draw conclusions based on given or collected information across industries. Challenges associated with the analysis, security,

sharing, storage, and visualization of large and complex data sets continue to plague data scientists and analysts alike as traditional data processing applications struggle to adequately manage big data. The Handbook of Research on Big Data Storage and Visualization Techniques is a critical scholarly resource that explores big data analytics and technologies and their role in developing a broad understanding of issues pertaining to the use of big data in multidisciplinary fields. Featuring coverage on a broad range of topics, such as architecture patterns, programing systems, and computational energy, this publication is geared towards professionals, researchers, and students seeking current research and application topics on the subject.

Educational Data Mining

Information is considered essential in every business model, which is why staying abreast of the latest resources can help combat many challenges and aid businesses in creating a synthesis between people and information, keeping up with evolving technologies, and keeping data accurate and secure. The Handbook of Research on Knowledge Management for Contemporary Business Environments is a critical scholarly publication that examines the management of knowledge resources in modern business contexts. Including a wide range of topics such as information systems, sustainable competitive advantage, and knowledge sharing, this publication is a vital reference source for managers, academicians,

researchers, and students seeking current research on strategies that are able to manage the information in more than one context for present and future generations.

Data Mining: Concepts and Techniques

Handbook of Educational Data Mining (EDM) provides a thorough overview of the current state of knowledge in this area. The first part of the book includes nine surveys and tutorials on the principal data mining techniques that have been applied in education. The second part presents a set of 25 case studies that give a rich overview of the problems that EDM has addressed. Researchers at the Forefront of the Field Discuss Essential Topics and the Latest Advances With contributions by well-known researchers from a variety of fields, the book reflects the multidisciplinary nature of the EDM community. It brings the educational and data mining communities together, helping education experts understand what types of questions EDM can address and helping data miners understand what types of questions are important to educational design and educational decision making. Encouraging readers to integrate EDM into their research and practice, this timely handbook offers a broad, accessible treatment of essential EDM techniques and applications. It provides an excellent first step for newcomers to the EDM community and for active researchers to keep abreast of recent developments in the field.

Biological Knowledge Discovery Handbook

This book is devoted to the Educational Data Mining arena. It highlights works that show relevant proposals, developments, and achievements that shape trends and inspire future research. After a rigorous revision process sixteen manuscripts were accepted and organized into four parts as follows: · Profile: The first part embraces three chapters oriented to: 1) describe the nature of educational data mining (EDM); 2) describe how to pre-process raw data to facilitate data mining (DM); 3) explain how EDM supports government policies to enhance education. · Student modeling: The second part contains five chapters concerned with: 4) explore the factors having an impact on the student's academic success; 5) detect student's personality and behaviors in an educational game; 6) predict students performance to adjust content and strategies; 7) identify students who will most benefit from tutor support; 8) hypothesize the student answer correctness based on eye metrics and mouse click. · Assessment: The third part has four chapters related to: 9) analyze the coherence of student research proposals; 10) automatically generate tests based on competences; 11) recognize students activities and visualize these activities for being presented to teachers; 12) find the most dependent test items in students response data. · Trends: The fourth part encompasses four chapters about how to: 13) mine text for assessing students productions and supporting teachers; 14) scan student comments by statistical and text mining techniques; 15) sketch a social network analysis (SNA) to discover

student behavior profiles and depict models about their collaboration; 16) evaluate the structure of interactions between the students in social networks. This volume will be a source of interest to researchers, practitioners, professors, and postgraduate students aimed at updating their knowledge and find targets for future work in the field of educational data mining.

The Wiley Handbook of Ethnography of Education

The first comprehensive overview of preprocessing, mining,and postprocessing of biological data Molecular biology is undergoing exponential growth in both thevolume and complexity of biological data—and knowledgediscovery offers the capacity to automate complex search and dataanalysis tasks. This book presents a vast overview of the mostrecent developments on techniques and approaches in the field ofbiological knowledge discovery and data mining (KDD)—providingin-depth fundamental and technical field information on the mostimportant topics encountered. Written by top experts, Biological Knowledge DiscoveryHandbook: Preprocessing, Mining, and Postprocessing of BiologicalData covers the three main phases of knowledge discovery (datapreprocessing, data processing—also known as datamining—and data postprocessing) and analyzes both verificationsystems and discovery systems. BIOLOGICAL DATA PREPROCESSING Part A: Biological Data Management Part B: Biological Data Modeling Part C: Biological Feature Extraction Part D Biological Feature Selection BIOLOGICAL DATA MINING Part E: Regression

Analysis of Biological Data Part F Biological Data Clustering Part G: Biological Data Classification Part H: Association Rules Learning from Biological Data Part I: Text Mining and Application to Biological Data Part J: High-Performance Computing for Biological DataMining Combining sound theory with practical applications in molecularbiology, Biological Knowledge Discovery Handbook is idealfor courses in bioinformatics and biological KDD as well as forpractitioners and professional researchers in computer science,life science, and mathematics.

The SAGE Handbook of Social Media Research Methods

The interdisciplinary field of the learning sciences encompasses educational psychology, cognitive science, computer science, and anthropology, among other disciplines. The Cambridge Handbook of the Learning Sciences is the definitive introduction to this innovative approach to teaching, learning, and educational technology. This dramatically revised second edition incorporates the latest research in the field, includes twenty new chapters on emerging areas of interest, and features contributors who reflect the increasingly international nature of the learning sciences. The authors address the best ways to design educational software, prepare effective teachers, organize classrooms, and use the internet to enhance student learning. They illustrate the importance of creating productive learning environments both inside and outside school, including after-school clubs, libraries, museums, and online learning environments. Accessible and engaging,

the Handbook has proven to be an essential resource for graduate students, researchers, teachers, administrators, consultants, educational technology designers, and policy makers on a global scale.

Handbook of Research on Knowledge Management for Contemporary Business Environments

Incorporating new methods and approaches in learning environments is imperative to the development of education systems. By enhancing learning processes, education becomes more attainable at all levels. The Handbook of Research on Instructional Systems and Educational Technology is an essential reference source for the latest scholarly research on new models, trends, and data for solving instructional and learning challenges in education. Featuring extensive coverage on a wide range of topics such as distance education, online learning, and blended learning, this publication is ideally designed for academicians, practitioners, researchers, and students seeking current research on the latest improvements in instructional systems.

International Handbook of Metacognition and Learning Technologies

Data mining, or knowledge discovery in databases (KDD), is one of the fastest growing areas in computing application: it offers powerful tools to analyze the many large data bases used in business, science, and industry. Data mining technology searches large databases to extract information and patterns that can be translated into useful applications, such as classifying or predicting customer behavior. This book brings together fundamental knowledge on all aspects of data mining--concepts, theory, techniques, applications, and case studies. Designed for students and professionals in such fields as computing applications, information systems management and strategic research and management, the Handbook is a comprehensive guide to essential tools and technology, from neural networks to artificial intelligence. There is a strong emphasis on real-world case studies in such areas as banking, finance, marketing management, real estate, engineering, medicine, pharmacology, and the biosciences. A much needed resource on one of the fastest growing areas of computer applications--the development and use of tools to analyze, interpret, and make use of the enormous amounts of information stored in the world's databases.

The Wiley Handbook of Cognition and Assessment

The development of e-learning systems, particularly, web-based education systems, has increased exponentially in recent years. Following this line, one of the most promising areas is the application of knowledge extraction. As one of the first

of its kind, this book presents an introduction to e-learning systems, data mining concepts and the interaction between both areas.

Data Mining and Learning Analytics

Handbook of Statistical Analysis and Data Mining Applications, Second Edition, is a comprehensive professional reference book that guides business analysts, scientists, engineers and researchers, both academic and industrial, through all stages of data analysis, model building and implementation. The handbook helps users discern technical and business problems, understand the strengths and weaknesses of modern data mining algorithms and employ the right statistical methods for practical application. This book is an ideal reference for users who want to address massive and complex datasets with novel statistical approaches and be able to objectively evaluate analyses and solutions. It has clear, intuitive explanations of the principles and tools for solving problems using modern analytic techniques and discusses their application to real problems in ways accessible and beneficial to practitioners across several areas—from science and engineering, to medicine, academia and commerce. Includes input by practitioners for practitioners Includes tutorials in numerous fields of study that provide step-by-step instruction on how to use supplied tools to build models Contains practical advice from successful real-world implementations Brings together, in a single resource, all the information a beginner needs to understand the tools and issues

in data mining to build successful data mining solutions Features clear, intuitive explanations of novel analytical tools and techniques, and their practical applications

The Wiley Handbook of Action Research in Education

A comprehensive overview of data science covering the analytics, programming, and business skills necessary to master the discipline Finding a good data scientist has been likened to hunting for a unicorn: the required combination of technical skills is simply very hard to find in one person. In addition, good data science is not just rote application of trainable skill sets; it requires the ability to think flexibly about all these areas and understand the connections between them. This book provides a crash course in data science, combining all the necessary skills into a unified discipline. Unlike many analytics books, computer science and software engineering are given extensive coverage since they play such a central role in the daily work of a data scientist. The author also describes classic machine learning algorithms, from their mathematical foundations to real-world applications. Visualization tools are reviewed, and their central importance in data science is highlighted. Classical statistics is addressed to help readers think critically about the interpretation of data and its common pitfalls. The clear communication of technical results, which is perhaps the most undertrained of data science skills, is given its own chapter, and all topics are explained in the context of solving real-

world data problems. The book also features: • Extensive sample code and tutorials using Python™ along with its technical libraries • Core technologies of "Big Data," including their strengths and limitations and how they can be used to solve real-world problems • Coverage of the practical realities of the tools, keeping theory to a minimum; however, when theory is presented, it is done in an intuitive way to encourage critical thinking and creativity • A wide variety of case studies from industry • Practical advice on the realities of being a data scientist today, including the overall workflow, where time is spent, the types of datasets worked on, and the skill sets needed The Data Science Handbook is an ideal resource for data analysis methodology and big data software tools. The book is appropriate for people who want to practice data science, but lack the required skill sets. This includes software professionals who need to better understand analytics and statisticians who need to understand software. Modern data science is a unified discipline, and it is presented as such. This book is also an appropriate reference for researchers and entry-level graduate students who need to learn real-world analytics and expand their skill set. FIELD CADY is the data scientist at the Allen Institute for Artificial Intelligence, where he develops tools that use machine learning to mine scientific literature. He has also worked at Google and several Big Data startups. He has a BS in physics and math from Stanford University, and an MS in computer science from Carnegie Mellon.

Statistical and Machine-Learning Data Mining

Data Mining and Data Visualization focuses on dealing with large-scale data, a field commonly referred to as data mining. The book is divided into three sections. The first deals with an introduction to statistical aspects of data mining and machine learning and includes applications to text analysis, computer intrusion detection, and hiding of information in digital files. The second section focuses on a variety of statistical methodologies that have proven to be effective in data mining applications. These include clustering, classification, multivariate density estimation, tree-based methods, pattern recognition, outlier detection, genetic algorithms, and dimensionality reduction. The third section focuses on data visualization and covers issues of visualization of high-dimensional data, novel graphical techniques with a focus on human factors, interactive graphics, and data visualization using virtual reality. This book represents a thorough cross section of internationally renowned thinkers who are inventing methods for dealing with a new data paradigm. Distinguished contributors who are international experts in aspects of data mining Includes data mining approaches to non-numerical data mining including text data, Internet traffic data, and geographic data Highly topical discussions reflecting current thinking on contemporary technical issues, e.g. streaming data Discusses taxonomy of dataset sizes, computational complexity, and scalability usually ignored in most discussions Thorough discussion of data visualization issues blending statistical, human factors, and computational insights

Handbook of Educational Theories

Handbook of Big Data provides a state-of-the-art overview of the analysis of large-scale datasets. Featuring contributions from well-known experts in statistics and computer science, this handbook presents a carefully curated collection of techniques from both industry and academia. Thus, the text instills a working understanding of key statistical and computing ideas that can be readily applied in research and practice. Offering balanced coverage of methodology, theory, and applications, this handbook: Describes modern, scalable approaches for analyzing increasingly large datasets Defines the underlying concepts of the available analytical tools and techniques Details intercommunity advances in computational statistics and machine learning Handbook of Big Data also identifies areas in need of further development, encouraging greater communication and collaboration between researchers in big data sub-specialties such as genomics, computational biology, and finance.

The Wiley International Handbook of Educational Foundations

A state-of-the-art reference on educational ethnography edited by leading journal editors This book brings an international group of writers together to offer an authoritative state-of-the-art review of, and critical reflection on, educational

ethnography as it is being theorized and practiced today—from rural and remote settings to virtual and visual posts. It provides a definitive reference point and academic resource for those wishing to learn more about ethnographic research in education and the ways in which it might inform their research as well as their practice. Engaging in equal measure with the history of ethnography, its current state-of play as well as its prospects, The Wiley Handbook of Ethnography of Education covers a range of traditional and contemporary subjects—foundational aims and principles; what constitutes 'good' ethnographic practice; the role of theory; global and multi-sited ethnographic methods in education research; ethnography's many forms (visual, virtual, auto-, and online); networked ethnography and internet resources; and virtual and place-based ethnographic fieldwork. Makes a return to fundamental principles of ethnographic inquiry, and describes and analyzes the many modalities of ethnography existing today Edited by highly-regarded authorities of the subject with contributions from well-known experts in ethnography Reviews both classic ideas in the ethnography of education, such as "grounded theory", "triangulation", and "thick description" along with new developments and challenges An ideal source for scholars in libraries as well as researchers out in the field The Wiley Handbook of Ethnography of Education is a definitive reference that is indispensable for anyone involved in educational ethnography and questions of methodology.

Big Data in Education

This book organizes key concepts, theories, standards, methodologies, trends, challenges and applications of data mining and knowledge discovery in databases. It first surveys, then provides comprehensive yet concise algorithmic descriptions of methods, including classic methods plus the extensions and novel methods developed recently. It also gives in-depth descriptions of data mining applications in various interdisciplinary industries.

The Wiley Handbook of Educational Supervision

This state-of-the-art resource brings together the most innovative scholars and thinkers in the field of testing to capture the changing conceptual, methodological, and applied landscape of cognitively-grounded educational assessments. Offers a methodologically-rigorous review of cognitive and learning sciences models for testing purposes, as well as the latest statistical and technological know-how for designing, scoring, and interpreting results Written by an international team of contributors at the cutting-edge of cognitive psychology and educational measurement under the editorship of a research director at the Educational Testing Service and an esteemed professor of educational psychology at the University of Alberta as well as supported by an expert advisory board Covers conceptual frameworks, modern methodologies, and applied topics, in a style and at a level of technical detail that will appeal to a wide range of readers from both

applied and scientific backgrounds Considers emerging topics in cognitively-grounded assessment, including applications of emerging socio-cognitive models, cognitive models for human and automated scoring, and various innovative virtual performance assessments

Handbook of Learning Analytics

Promotes a model of critique for teachers, scholars, and policy makers to challenge established educational practice in a global context. The Wiley International Handbook of Educational Foundations features international scholars uniquely qualified to examine issues specific to their regions of the world. The Handbook provides readers with an alternative to the traditional texts in the foundations of education by taking aim at the status quo, and by offering frameworks from which teachers and scholars of education can critically evaluate schools and schooling. Throughout, the essays are grounded in a broad historical context and the authors use an international lens to examine current controversies in order to provoke the kinds of discussion crucial for developing a critical stance. The Handbook is presented in six parts, each beginning with an Introduction to the subject. The sections featured are: Part I. Challenging Foundational Histories and Narratives of Achievement; Part II. Challenging Notions of Normalcy and Dominion; Part III. Challenging the Profession; Part IV. Challenging the Curriculum; Part V. Challenging the Idea of Schooling; and Part VI. Challenging Injustice, Inequity, and Enmity. The

Wiley International Handbook of Educational Foundations offers unique insight into subjects such as: Educational reform in India, Pakistan, and China The global implications of equity-driven education Teacher education and inclusionary practices The Global Educational Reform Movement (G.E.R.M.) Education and the arts Maria Montessori and Loris Malaguzzi Legal education in authoritarian Syria The Wiley International Handbook of Educational Foundations is an important book for current and aspiring educators, scholars, and policy makers.

Recommender Systems for Learning

Explore the game-changing technology that allows mobile learningto effectively reach K-12 students Mobile Learning: A Handbook for Developers, Educators andLearners provides research-based foundations for developing,evaluating, and integrating effective mobile learning pedagogy.Twenty-first century students require twenty-first centurytechnology, and mobile devices provide new and effective ways toeducate children. But with new technologies come new challenges—therefore,this handbook presents a comprehensive look at mobile learning bysynthesizing relevant theories and drawing practical conclusionsfor developers, educators, and students. Mobile devices—in ways that the laptop, the personalcomputer, and netbook computers have not—present theopportunity to make learning more engaging, interactive, andavailable in both traditional classroom settings and informallearning environments. From theory to practice,

MobileLearning explores how mobile devices are different than theirtechnological predecessors, makes the case for developers,teachers, and parents to invest in the technology, and illustratesthe many ways in which it is innovative, exciting, and effective ineducating K-12 students. Explores how mobile devices can support the needs ofstudents Provides examples, screenshots, graphics, and visualizations toenhance the material presented in the book Provides developers with the background necessary to create theapps their audience requires Presents the case for mobile learning in and out of classroomsas early as preschool Discusses how mobile learning enables better educationalopportunities for the visually impaired, students with Autism, andadult learners. If you're a school administrator, teacher, app developer, orparent, this topical book provides a theoretical, well-researcheddiscussion of the pedagogical theory and mobile learning, as wellas practical advice in setting up a mobile learning strategy.

The Wiley International Handbook of Educational Leadership

An authoritative guide to educational supervision in today's complex environment The Wiley Handbook of Educational Supervision offers a comprehensive resource that explores the evolution of supervision through contributions from a panel of noted experts. The text explores a wealth of topics including recent and dramatic changes in the complex context of today's schools. This important resource: Describes supervision in a historical context Includes a review of adult learning and

professional community Reviews new teacher preparation and comprehensive induction systems Contains perspectives on administrative feedback, peer coaching and collaboration Presents information on professional development and job-embedding learning Examines policy and implementation challenges in teacher evaluation Written for researchers, policy analysts, school administrators and supervisors, The Wiley Handbook of Educational Supervision draws on concepts, theories and research from other closely related fields of study to enhance and challenge our understanding of educational supervision.

The Elements of Statistical Learning

The second edition of a bestseller, Statistical and Machine-Learning Data Mining: Techniques for Better Predictive Modeling and Analysis of Big Data is still the only book, to date, to distinguish between statistical data mining and machine-learning data mining. The first edition, titled Statistical Modeling and Analysis for Database Marketing: Effective Techniques for Mining Big Data, contained 17 chapters of innovative and practical statistical data mining techniques. In this second edition, renamed to reflect the increased coverage of machine-learning data mining techniques, the author has completely revised, reorganized, and repositioned the original chapters and produced 14 new chapters of creative and useful machine-learning data mining techniques. In sum, the 31 chapters of simple yet insightful quantitative techniques make this book unique in the field of data mining

literature. The statistical data mining methods effectively consider big data for identifying structures (variables) with the appropriate predictive power in order to yield reliable and robust large-scale statistical models and analyses. In contrast, the author's own GenIQ Model provides machine-learning solutions to common and virtually unapproachable statistical problems. GenIQ makes this possible — its utilitarian data mining features start where statistical data mining stops. This book contains essays offering detailed background, discussion, and illustration of specific methods for solving the most commonly experienced problems in predictive modeling and analysis of big data. They address each methodology and assign its application to a specific type of problem. To better ground readers, the book provides an in-depth discussion of the basic methodologies of predictive modeling and analysis. While this type of overview has been attempted before, this approach offers a truly nitty-gritty, step-by-step method that both tyros and experts in the field can enjoy playing with.

Data Mining and Knowledge Discovery Handbook

A comprehensive source that demonstrates how 21st century Christianity can interrelate with current educational trends and aspirations The Wiley Handbook of Christianity and Education provides a resource for students and scholars interested in the most important issues, trends, and developments in the relationship between Christianity and education. It offers a historical understanding of these

two intertwined subjects with a view to creating a context for the myriad issues that characterize—and challenge—the relationship between Christianity and education today. Presented in three parts, the book starts with thought-provoking essays covering major issues in Christian education such as the movement away from God in American education; the Christian paradigm based on love and character vs. academic industrial models of American education; why religion is good for society, offenders, and prisons; the resurgence of vocational exploration and its integrative potential for higher education; and more. It then looks at Christianity and education around the globe—faith-based schooling in a pluralistic democracy; religious expectations in the Latino home; church-based and community-centered higher education; etc. The third part examines how humanity is determining the relationship between Christianity and education with chapters covering the use of Christian paradigm of living and learning; enrollment, student demographic, and capacity trends in Christian schools after the introduction of private schools; empirical studies on the perceptions of intellectual diversity at elite universities in the US; and more. Provides the breadth and depth of knowledge necessary to gain a sophisticated and nuanced understanding of the complex relationship between Christianity and education and its place in contemporary society A long overdue assessment of the subject, one that takes into account the enormous changes in Christian education Presents a global consideration of the subject Examines Christian education across elementary, secondary, and post-secondary levels The Wiley Handbook of Christianity and

Education will be of great interest to Christian educators in the academic world, the teaching profession, the ministry, and the college and graduate level student body.

Handbook of Research on Instructional Systems and Educational Technology

Want to tap the power behind search rankings, product recommendations, social bookmarking, and online matchmaking? This fascinating book demonstrates how you can build Web 2.0 applications to mine the enormous amount of data created by people on the Internet. With the sophisticated algorithms in this book, you can write smart programs to access interesting datasets from other web sites, collect data from users of your own applications, and analyze and understand the data once you've found it. Programming Collective Intelligence takes you into the world of machine learning and statistics, and explains how to draw conclusions about user experience, marketing, personal tastes, and human behavior in general -- all from information that you and others collect every day. Each algorithm is described clearly and concisely with code that can immediately be used on your web site, blog, Wiki, or specialized application. This book explains: Collaborative filtering techniques that enable online retailers to recommend products or media Methods of clustering to detect groups of similar items in a large dataset Search engine features -- crawlers, indexers, query engines, and the PageRank algorithm

Optimization algorithms that search millions of possible solutions to a problem and choose the best one Bayesian filtering, used in spam filters for classifying documents based on word types and other features Using decision trees not only to make predictions, but to model the way decisions are made Predicting numerical values rather than classifications to build price models Support vector machines to match people in online dating sites Non-negative matrix factorization to find the independent features in a dataset Evolving intelligence for problem solving -- how a computer develops its skill by improving its own code the more it plays a game Each chapter includes exercises for extending the algorithms to make them more powerful. Go beyond simple database-backed applications and put the wealth of Internet data to work for you. "Bravo! I cannot think of a better way for a developer to first learn these algorithms and methods, nor can I think of a better way for me (an old AI dog) to reinvigorate my knowledge of the details." -- Dan Russell, Google "Toby's book does a great job of breaking down the complex subject matter of machine-learning algorithms into practical, easy-to-understand examples that can be directly applied to analysis of social interaction across the Web today. If I had this book two years ago, it would have saved precious time going down some fruitless paths." -- Tim Wolters, CTO, Collective Intellect

Data Analytics Applications in Education

Technology enhanced learning (TEL) aims to design, develop and test

sociotechnical innovations that will support and enhance learning practices of both individuals and organisations. It is therefore an application domain that generally covers technologies that support all forms of teaching and learning activities. Since information retrieval (in terms of searching for relevant learning resources to support teachers or learners) is a pivotal activity in TEL, the deployment of recommender systems has attracted increased interest. This brief attempts to provide an introduction to recommender systems for TEL settings, as well as to highlight their particularities compared to recommender systems for other application domains.

Handbook of Statistical Analysis and Data Mining Applications

Comprehensive overview of the theoretical, conceptual, and applied/practical presentations of action research as it is found and conducted solely in educational settings The Wiley Handbook of Action Research in Education is the first book to offer theoretical, conceptual, and applied/practical presentations of action research as it is found and conducted solely in educational settings. Covering primarily PK-12 educational settings, the book utilizes a cross-section of international authors and presentations to provide global perspectives on action research in education. Part I of The Wiley Handbook of Action Research in Education focuses on various foundational aspects and issues related to action research. Part II is centered on chapters that present theories and principles that help to guide the

use of action research in educational contexts. Part III focuses on specific applications of educational action research in practice. Part IV provides an outlet for seven educational practitioners to share their experiences in conducting action research. Each of these authors also discusses the importance and value that action research has had on him or her, both professionally and personally. Discuss action research in PK-12, as well as in higher education settings The first book to focus on the importance and application of action research exclusively in educational settings Offers world perspectives on action research in education Written by a team of international scholars The Wiley Handbook of Action Research in Education is an excellent book for advanced undergraduate students, graduate students, and scholars studying and/or researching educational action research.

Educational Data Mining

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

Handbook of Research on Modern Educational Technologies, Applications, and Management

Data Mining and Knowledge Discovery Handbook organizes all major concepts, theories, methodologies, trends, challenges and applications of data mining (DM) and knowledge discovery in databases (KDD) into a coherent and unified repository. This book first surveys, then provides comprehensive yet concise

algorithmic descriptions of methods, including classic methods plus the extensions and novel methods developed recently. This volume concludes with in-depth descriptions of data mining applications in various interdisciplinary industries including finance, marketing, medicine, biology, engineering, telecommunications, software, and security. Data Mining and Knowledge Discovery Handbook is designed for research scientists and graduate-level students in computer science and engineering. This book is also suitable for professionals in fields such as computing applications, information systems management, and strategic research management.

The Data Science Handbook

"The Handbook of Learning Analytics is designed to meet the needs of a new and growing field. It aims to balance rigor, quality, open access and breadth of appeal and was devised to be an introduction to the current state of research. The Handbook is a snapshot of the field in 2017 and features a range of prominent authors from the learning analytics and educational data mining research communities. The chapters have been peer reviewed by committed members of these fields and are being published with the endorsement of both the Society for Learning Analytics Research and the International Society for Educational Data Mining. We hope you will find the Handbook of Learning Analytics a useful and informative resource."--Publisher information.

Programming Collective Intelligence

The Wiley Handbook of Global Educational Reform examines educational reform from a global perspective. Comprised of approximately 25 original and specially commissioned essays, which together interrogate educational reform from a critical global and transnational perspective, this volume explores a range of topics and themes that fully investigate global convergences in educational reform policies, ideologies, and practices. The Handbook probes the history, ideology, organization, and institutional foundations of global educational reform movements; actors, institutions, and agendas; and local, national, and global education reform trends. It further examines the "new managerialism" in global educational reform, including the standardization of national systems of educational governance, curriculum, teaching, and learning through the rise of new systems of privatization, accountability, audit, big-data, learning analytics, biometrics, and new technology-driven adaptive learning models. Finally, it takes on the subjective and intersubjective experiential dimensions of the new educational reforms and alternative paths for educational reform tied to the ethical imperative to reimagine education for human flourishing, justice, and equality. An authoritative, definitive volume and the first global take on a subject that is grabbing headlines as well as preoccupying policy makers, scholars, and teachers around the world Edited by distinguished leaders in the field Features contributions from an illustrious list of experts and scholars The Wiley Handbook of Global

Educational Reform will be of great interest to scholars and graduate students of education throughout the world as well as the policy makers who can institute change.

Handbook of Data Mining and Knowledge Discovery

This book is devoted to the Educational Data Mining arena. It highlights works that show relevant proposals, developments, and achievements that shape trends and inspire future research. After a rigorous revision process sixteen manuscripts were accepted and organized into four parts as follows: · Profile: The first part embraces three chapters oriented to: 1) describe the nature of educational data mining (EDM); 2) describe how to pre-process raw data to facilitate data mining (DM); 3) explain how EDM supports government policies to enhance education. · Student modeling: The second part contains five chapters concerned with: 4) explore the factors having an impact on the student's academic success; 5) detect student's personality and behaviors in an educational game; 6) predict students performance to adjust content and strategies; 7) identify students who will most benefit from tutor support; 8) hypothesize the student answer correctness based on eye metrics and mouse click. · Assessment: The third part has four chapters related to: 9) analyze the coherence of student research proposals; 10) automatically generate tests based on competences; 11) recognize students activities and visualize these activities for being presented to teachers; 12) find the

most dependent test items in students response data. · Trends: The fourth part encompasses four chapters about how to: 13) mine text for assessing students productions and supporting teachers; 14) scan student comments by statistical and text mining techniques; 15) sketch a social network analysis (SNA) to discover student behavior profiles and depict models about their collaboration; 16) evaluate the structure of interactions between the students in social networks. This volume will be a source of interest to researchers, practitioners, professors, and postgraduate students aimed at updating their knowledge and find targets for future work in the field of educational data mining.

Data Mining in E-learning

With coverage of the entire research process in social media, data collection and analysis on specific platforms, and innovative developments in the field, this handbook is the ultimate resource for those looking to tackle the challenges that come with doing research in this sphere.

Handbook of Big Data

As technology and technological advancements become a more prevalent and essential aspect of daily and business life, educational institutions must keep pace

in order to maintain relevance and retain their ability to adequately prepare students for their lives beyond education. Such institutions and their leaders are seeking relevant strategies for the implementation and effective use of new and upcoming technologies and leadership strategies to best serve students and educators within educational settings. As traditional education methods become more outdated, strategies to supplement and bolster them through technology and effective management become essential to the success of institutions and programs. The Handbook of Research on Modern Educational Technologies, Applications, and Management is an all-encompassing two-volume scholarly reference comprised of 58 original and previously unpublished research articles that provide cutting-edge, multidisciplinary research and expert insights on advancing technologies used in educational settings as well as current strategies for administrative and leadership roles in education. Covering a wide range of topics including but not limited to community engagement, educational games, data management, and mobile learning, this publication provides insights into technological advancements with educational applications and examines forthcoming implementation strategies. These strategies are ideal for teachers, instructional designers, curriculum developers, educational software developers, and information technology specialists looking to promote effective learning in the classroom through cutting-edge learning technologies, new learning theories, and successful leadership tactics. Administrators, educational leaders, educational policymakers, and other education professionals will also benefit from this

publication by utilizing the extensive research on managing educational institutions and providing valuable training and professional development initiatives as well as implementing the latest administrative technologies. Additionally, academicians, researchers, and students in areas that include but are not limited to educational technology, academic leadership, mentorship, learning environments, and educational support systems will benefit from the extensive research compiled within this publication.

The Wiley Handbook of Christianity and Education

A provocative and authoritative compendium of writings on leadership in education from distinguished scholar-educators worldwide. What is educational leadership? What are some of the trends, questions, and social forces most relevant to the current state of education? What are the possible futures of education, and what can educational leadership contribute to these futures? To address these questions, and more, editors Duncan Waite and Ira Bogotch asked distinguished international thought leaders on education to share their insights, observations, and research findings on the nature of education and educational leadership in the global village. The Wiley International Handbook of Educational Leadership brings together contributions from authors in twenty-one countries, spanning six continents. Topics examined include leadership and aesthetics, creativity, eco-justice, advocacy, Big Data and technology, neoliberalism, emerging

philosophies and theories, critical democracy, gender and radical feminism, political economies, emotions, postcolonialism, and new directions in higher education. A must-read for teachers, researchers, scholars, and policy makers, this Handbook: Champions radical pluralism over consensus and pseudoscientific or political solutions to problems in education Embraces social, economic, and political relevance alongside the traditions of careful and systematic rigor Challenges traditional epistemological, cultural, and methodological concepts of education and educational leadership Explores the field's historical antecedents and ways in which leadership can transcend the narrow disciplinary and bureaucratic constraints imposed by current research designs and methods Advances radically new possibilities for remaking educational leadership research and educational institutions

Handbook of Research on Big Data Storage and Visualization Techniques

Handbook of Statistical Analysis and Data Mining Applications, Second Edition, is a comprehensive professional reference book that guides business analysts, scientists, engineers and researchers, both academic and industrial, through all stages of data analysis, model building and implementation. The handbook helps users discern technical and business problems, understand the strengths and

weaknesses of modern data mining algorithms and employ the right statistical methods for practical application. This book is an ideal reference for users who want to address massive and complex datasets with novel statistical approaches and be able to objectively evaluate analyses and solutions. It has clear, intuitive explanations of the principles and tools for solving problems using modern analytic techniques and discusses their application to real problems in ways accessible and beneficial to practitioners across several areas—from science and engineering, to medicine, academia and commerce. Includes input by practitioners for practitioners Includes tutorials in numerous fields of study that provide step-by-step instruction on how to use supplied tools to build models Contains practical advice from successful real-world implementations Brings together, in a single resource, all the information a beginner needs to understand the tools and issues in data mining to build successful data mining solutions Features clear, intuitive explanations of novel analytical tools and techniques, and their practical applications

Data Mining and Data Visualization

Although educational theories are presented in a variety of textbooks and in some discipline specific handbooks and encyclopedias, no publication exists which serves as a comprehensive, consolidated collection of the most influential and most frequently quoted and consulted theories. There is a need to put such theories into

a single, easily accessible volume. A unique feature of the Handbook is the way in which it conveys the theories. The organization of the chapters within each section makes the volume an easy·touse and tu1derstandable reference tool as researchers and practitioners seek theories to guide their research and practice and as they develop theoretical frameworks. In addition to the traditional theories presented, the Handbook includes emerging theories for the 21st Century as well as presenting practical examples of the use of these theories in research from dissertations and published articles. An appendix which indicates which theories have instruments associated with them and where those instruments can be found is also included. The Handbook consists of 12 sections. Section I provides the jntroduction with a focus on what constitutes good theory as well as how theory guides research and practice. The remaining sections address Philosophical Educational Constructs, Leaming Theory, Instructional Theory, Curriculum theory, Literacy and Language Acquisition Theory, Counseling Theory, Moral Development Theory, Classroom Management Theory, Assessment Theory, Organizational Theory, and Leadership/Management Theory. Each section consists of an overview written by the section editor of the general theoretical concepts to be addressed by the chapter authors. Each chapter within the section will include (a) a description of the theory with goals, assumptions, and aspects particular to the theory, (b) the original development of and interactions of the theory, (c) validation of the theory, (d) generalizability of the theory across cultures, ethnicities, and genders, (e) the use and application of the theory, (f) critiques of the theory, (g)

any instruments associated with the theory, and (h) two to five particular studies exemplifying particular theories as individuals have used them in theoretical framework of dissertations or published articles and be written by the original theorist or prominent contributors to the theory. The Handbook is intended for graduate students enrolled in research courses or completing theses and dissertations. Additionally, professors of all educational disciplines in the social scierices would be an interested audience. There is also potential use of the text as administrators, counselors, and teachers in schools use theory to guide practice. As more inquiry is being promoted among school leaders, this book has more meaning for practitioners.

Mobile Learning

During the past decade there has been an explosion in computation and information technology. With it have come vast amounts of data in a variety of fields such as medicine, biology, finance, and marketing. The challenge of understanding these data has led to the development of new tools in the field of statistics, and spawned new areas such as data mining, machine learning, and bioinformatics. Many of these tools have common underpinnings but are often expressed with different terminology. This book describes the important ideas in these areas in a common conceptual framework. While the approach is statistical, the emphasis is on concepts rather than mathematics. Many examples are given,

with a liberal use of color graphics. It should be a valuable resource for statisticians and anyone interested in data mining in science or industry. The book's coverage is broad, from supervised learning (prediction) to unsupervised learning. The many topics include neural networks, support vector machines, classification trees and boosting---the first comprehensive treatment of this topic in any book. This major new edition features many topics not covered in the original, including graphical models, random forests, ensemble methods, least angle regression & path algorithms for the lasso, non-negative matrix factorization, and spectral clustering. There is also a chapter on methods for "wide" data (p bigger than n), including multiple testing and false discovery rates. Trevor Hastie, Robert Tibshirani, and Jerome Friedman are professors of statistics at Stanford University. They are prominent researchers in this area: Hastie and Tibshirani developed generalized additive models and wrote a popular book of that title. Hastie co-developed much of the statistical modeling software and environment in R/S-PLUS and invented principal curves and surfaces. Tibshirani proposed the lasso and is co-author of the very successful An Introduction to the Bootstrap. Friedman is the co-inventor of many data-mining tools including CART, MARS, projection pursuit and gradient boosting.

The Cambridge Handbook of the Learning Sciences

Education in today's technologically advanced environments makes complex

cognitive demands on students pre-learning, during, and post-learning. Not surprisingly, these analytical learning processes--metacognitive processes--have become an important focus of study as new learning technologies are assessed for effectiveness in this area.Rich in theoretical models and empirical data, the International Handbook of Metacognition and Learning Technologies synthesizes current research on this critical topic. This interdisciplinary reference delves deeply into component processes of self-regulated learning (SRL), examining theories and models of metacognition, empirical issues in the study of SRL, and the expanding role of educational technologies in helping students learn. Innovations in multimedia, hypermedia, microworlds, and other platforms are detailed across the domains, so that readers in diverse fields can evaluate the theories, data collection methods, and conclusions. And for the frontline instructor, contributors offer proven strategies for using technologies to benefit students at all levels. For each technology covered, the Handbook: Explains how the technology fosters students' metacognitive or self-regulated learning.Identifies features designed to study or support metacognitve/SRL behaviors.Reviews how its specific theory or model addresses learners' metacognitive/SRL processes.Provides detailed findings on its effectiveness toward learning.Discusses its implications for the design of metacognitive tools.Examines any theoretical, instructional, or other challenges.These leading-edge perspectives make the International Handbook of Metacognition and Learning Technologies a resource of great interest to professionals and researchers in science and math education, classroom teachers,

human resource researchers, and industrial and other instructors.

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