Visual Clues Practical Data Visualisation

This book investigates a new interactive data visualisation concept that employs traditional Chinese aesthetics as a basis for exploring contemporary digital technological contexts. It outlines the aesthetic approach, which draws on non-Western aesthetic concepts, specifically the Yijing and Taoist cosmological principles, and discusses the development of data-based digital practices within a theoretical framework that combines traditional Taoist ideas with the digital humanities. The book also offers a critique of the Western aesthetics underpinning data visualisation, in particular the Kantian sublime, which prioritises the experience of power over the natural world viewed at a distance. Taoist philosophy, in contrast, highlights the integration of the surface of the body and the surface of nature as a Taoist body, rather than promoting an opposition of mind and body. The book then explores the transformational potential between the human body and technology, particularly in creating an aesthetic approach spanning traditional Chinese aesthetics and gesture-based technology. Representing a valuable contribution to the digital humanities, the book helps readers understand data-based artistic practices, while also bringing the ideas of traditional Chinese aesthetics to Western audiences. In addition, it will be of interest to practitioners in the fields of digital art and data visualisation seeking new models.

Visualizing data is an essential part of good statistical practice. Plots are useful for revealing structure in the data, checking model assumptions, detecting outliers and finding unanticipated patterns. Post-analysis visualization is commonly used to communicate the results of statistical analyses. The availability of good statistical visualization software is key in effectively performing data analysis and in exploring and developing new methods for data visualization. Compared to static visualization, interactive visualization adds natural and powerful ways to explore the data. With interactive visualization an analyst can dive into the data and quickly react to visual clues by, for example, re-focusing and creating interactive queries of the data. Further, linking visual attributes of the data points such as color and size allows the analyst to compare different visual representations of the data such as histograms and scatterplots. In this thesis, we explore and develop new interactive data visualization and exploration tools for high-dimensional data. The original focus of our research was a software implementation of navigation graphs. Navigation graphs are navigational infrastructures for controlled exploration of high-dimensional data. As part of this thesis, we developed the first interactive implementation of these navigation graphs called RnavGraph. With RnavGraph we explored various features for enhancing the usability of navigation graphs. We concluded that a powerful interactive scatterplot display and methods to deal with large graphs were two areas that would add great value to the navigation graph framework. RnavGraph's scatterplot display proved to be particularly useful for data analysis and we continued our research with the design and implementation of a general-purpose interactive visualization toolkit called loon. The core contributions of loon are as follows. loon implements a general design for interactive statistical graphic displays that supports layering of visual information such as point objects, lines and polygons. These displays further support zooming, panning and selection, and modification and deactivation of plot elements and layers. Interactions with plots are provided with mouse and keyboard gestures as well as via command line control and with inspectors. These inspectors provide graphical user interfaces for modifying and overseeing the plots. loon also implements a novel dynamic linking mechanism that can be used to assign the plots that are to be linked and the linking rules at run time. Additionally, loon's design provides several different types of event bindings to add and customize functionality of loon's displays. In this thesis, we discuss loon's design and framework by giving concrete examples that show how these design choices can be used to efficiently explore and visualize data interactively. These examples revolve around loon's statistical interactive displays such as histograms, scatterplots and graph displays. We also illustrate how loon's design can be used to layer on plots relevant statistical information and model fits such as density estimates, contours, regression lines and geographical maps for spatial data analysis. loon is implemented in Tcl and Tk and we explore the integration of loon's framework into a complete statistical computing environment such as R. We show examples of statistical analyses performed in R that are enhanced with interactivity using loon. loon also implements a number of new tools for high-dimensional data exploration. The serialaxes display represents the data using parallel or radial coordinates. The scatterplot display supports high-dimensional point glyphs such as serialaxes glyphs, polygons and images. loon's navigation graphs allow for multiple navigators and for direct manipulation of a graph which includes deactivating nodes and their adjoining edges. To deal with large graphs, we propose and implement environments for creating navigation graphs interactively by filtering the nodes with respect to some node-associated relevant measures. Such measures include the correlation of variable pairs and the graph-based scagnostics measures. We use sliders, histograms and scatterplot matrices to interactively filter the nodes based on the value of their associated measure. Measures are kept generic and can be recalculated for the subset of selected data points. As another tool for exploring high-dimensional data, we introduce a setup that allows the analyst to select points and have their k-nearest neighboring points highlighted automatically. The space to calculate the inter-point distances that determine the k-nearest neighbors can be chosen dynamically. Finally, we propose a new high-dimensional point glyph called the spiro glyph. While some of loon's interaction features have appeared in part or in whole in statistical systems in the past 40 years (e.g. brushing, panning, zooming, linking plots, etc.), no other equally rich system has provided (or continues to provide) an interactive data visualization system integrated with a widely available and stable statistical system like R. Both Tcl and R are well suited for rapid prototyping of software and statistical methods; with loon rapid prototyping of interactive data visualization tools and methods become possible as well.

Geographical Information is essential for the layout, planning and management of space, and involves taxation, cadastral data bases, environmental policy, water management, maintenance and protection of pipeline systems, terrain modelling and the making of maps. The third European conference brought together some 300 speakers and authors from academia, industry and government. The resulting monumental work is representative for the state-of-the-art of knowledge and information on Geographical Information.

This text surveys research from the fields of data mining and information visualisation and presents a case for techniques by which information visualisation can be used to uncover real knowledge hidden away in large databases.

The Universal Mind

Information Visualization

11th International Symposium on Spatial Data Handling

Information Visualization in Data Mining and Knowledge Discovery

NDT Data Fusion

A Management Approach

Cartography, Third Edition

"This book provides relevant theoretical perspectives on the use of ICT in Urban Planning as well as an updated account of the most recent developments in the practice of e-planning in different regions of the world"--Provided by publisher.

Neural networks are increasingly being used in real-world business applications and, in some cases, such as fraud detection, they have already become the method of choice. Their use for risk assessment is also growing and they have been employed to visualise complex databases for marketing segmentation. This boom in applications covers a wide range of business interests -- from finance management, through forecasting, to production. The combination of statistical, neural and fuzzy methods now enables direct quantitative studies to be carried out without the need for rocket-science expertise. This book reviews the state-of-the-art in current applications of neural-network methods in three important areas of business analysis. It includes a tutorial chapter to introduce new users to the potential and pitfalls of this new technology.

Immersive Analytics is a new research initiative that aims to remove barriers between people, their data and the tools they use for analysis and decision making. Here the aims of immersive analytics research are clarified, its opportunities and historical context, as well as providing a broad research agenda for the field. In addition, it is reviewed how the term immersion has been used to refer to both technological and psychological immersion, both of which are central to immersive analytics research.

An accessible primer on how to create effective graphics from data This book provides students and researchers a hands-on introduction to the principles and practice of data visualization. It explains what makes some graphs succeed while others fail, how to make high-quality figures from data using powerful and reproducible methods, and how to think about data visualization in an honest and effective way. Data Visualization builds the reader's expertise in ggplot2, a versatile visualization library for the R programming language. Through a series of worked examples, this accessible primer then demonstrates how to create plots piece by piece, beginning with summaries of single variables and moving on to more complex graphics. Topics include plotting continuous and categorical variables; layering information on graphics; producing effective "small multiple" plots; grouping, summarizing, and transforming data for plotting; creating maps; working with the output of statistical models; and refining plots to make them more comprehensible.

Effective graphics are essential to communicating ideas and a great way to better understand data. This book provides the practical skills students and practitioners need to visualize quantitative data and get the most out of their research findings. Provides hands-on instruction using R and ggplot2 Shows how the "tidyverse" of data analysis tools makes working with R easier and more consistent Includes a library of data sets, code, and functions

Web Cartography

Spatial Computing: Issues in Vision, Multimedia and Visualization Technologies

Human-Computer Interaction. Design and User Experience

From Research to Application Through Cooperation

Immersive Analytics

Geographical Information '97

Proceedings of the Eurographics Workshop in Blaubeuren, Germany April 20–22, 1998

Maps and atlases are created as soon as information on our geography has been clarified. They are used to find directions or to get insight into spatial relations. They are produced and used both on paper as well as on-screen. The Web is the new medium for spreading and using maps. This book explains the benefits of this medium from the perspective of the user, and the map provider. Opportunities and pitfalls are illustrated by a set of case-studies. A website accompanies the book and provides a dynamic environment for demonstrating many of the principles set out in the text, including access to a basic course in Internet cartography as well as links to other interesting places on the Web. Professor Kraak looks at basic questions such as "I have this data what can I do with it?" and discusses the various functions of maps on the web. Web Cartography also looks at the particularities of multidimensional web maps and addresses topics such as map contents (colour, text and symbols), map physics (size and resolution), and the map environment (interface design/site contents).

This revised and updated edition integrates the latest in modern technology with traditional cartographic principles. While providing a solid conceptual foundation in cartographic methodology, the text also introduces the very latest advances that have greatly influenced cartographic techniques. The new edition reflects the increasing importance of cartography as the basis for further geographical study, the text has been updated throughout and chapters on the latest developments in cartography have been integrated. There is also a more widespread emphasis on multimedia and the web.

This book introduces both conceptual and procedural aspects of cutting-edge data science methods, such as dynamic data visualization, artificial neural networks, ensemble methods, and text mining. There are at least two unique elements that can set the book apart from its rivals. First, most students in social sciences, engineering, and business took at least one class in introductory statistics before learning data science. However, usually these courses do not discuss the similarities and differences between traditional statistics and modern data science; as a result learners are disoriented by this seemingly drastic paradigm shift. In reaction, some traditionalists reject data science altogether while some beginning data analysts employ data mining tools as a "black box", without a comprehensive view of the foundational differences between traditional and modern methods (e.g., dichotomous thinking vs. pattern recognition, confirmation vs. exploration, single method vs. triangulation, single sample vs. cross-validation etc.). This book delineates the transition between classical methods and data science (e.g. from p value to Log Worth, from resampling to ensemble methods, from content analysis to text mining etc.). Second, this book aims to widen the learner's horizon by covering a plethora of software tools. When a technician has a hammer, every problem seems to be a nail. By the same token, many textbooks focus on a single software package only, and consequently the learner tends to fit the problem with the tool, but not the other way around. To rectify the situation, a competent analyst should be equipped with a tool set, rather than a single tool. For example, when the analyst works with crucial data in a highly regulated industry, such as pharmaceutical and banking, commercial software modules (e.g., SAS) are indispensable. For a mid-size and small company, open-source packages such as Python would come in handy. If the research goal is to create an executive summary quickly, the logical choice is rapid model comparison. If the analyst would like to explore the data by asking what-if questions, then dynamic graphing in JMP Pro is a better option. This book uses concrete examples to explain the pros and cons of various software applications.

This exciting new textbook offers an accessible, business-focused overview of the key theoretical concepts underpinning modern data analytics. It provides engaging and practical advice on using the key software tools, including SAS Visual Analytics, R and DataRobot, that are used in organisations to help make effective data-driven decisions. Combining theory with hands-on practical examples, this essential text includes cutting edge coverage of new areas of interest including social media analytics, design thinking and the ethical implications of using big data. A wealth of learning features including exercises, cases, online resources and data sets help students to develop analytic problem-solving skills. With its management perspective on analytics and its coverage of a range of popular software tools, this is an ideal essential text for upper-level undergraduate, postgraduate and MBA students. It is also ideal for practitioners wanting to understand the broader organisational context of big data analysis and to engage critically with the tools and techniques of business analytics.

Practical Data Visualization

Visualization Techniques in Space and Atmospheric Sciences

Advanced Data Mining Tools and Methods for Social Computing

Introduction to Data Science

Innovative Approaches of Data Visualization and Visual Analytics

Conceptual Modeling

Chinese Aesthetics, Interactive Visualization and Gaming Technologies

The three-volume set LNCS 12181, 12182, and 12183 constitutes the refereed proceedings of the Human Computer Interaction thematic area of the 22nd International Conference on Human-Computer Interaction, HCII 2020, which took place in Copenhagen, Denmark, in July 2020.* A total of 1439 papers and 238 posters have been accepted for publication in the HCII 2020 proceedings from a total of 6326 submissions. The 145 papers included in this HCI 2020 proceedings were organized in topical sections as follows: Part I: design theory, methods and practice in HCI; understanding users; usability, user experience and quality; and images, visualization and aesthetics in HCI. Part II: gesture-based interaction; speech, voice, conversation and emotions; multimodal interaction; and human robot interaction. Part III: HCI for well-being and Eudaimonia; learning, culture and creativity; human values, ethics, transparency and trust; and HCI in complex environments. *The conference was held virtually due to the COVID-19 pandemic.

Data fusion is a rapidly developing technology which involves the combination of information supplied by several NDT (Non-Destructive Testing) sensors to provide a more complete and understandable picture of structural integrity. This text is the first to be devoted exclusively to the concept of multisensor integration and data fusion applied to NDT. The advantages of this methodology are widely acknowledged and the author presents an excellent introduction to data fusion processes. Problems are approached progressively through detailed case studies, offering practical guidance for those wishing to develop and explore NDT data fusion further. This book will prove invaluable to inspectors, students and researchers concerned with NDT signal processing measurements and testing. It shows the great value and major benefits which can be achieved by implementing multisensor data fusion, not only in NDT but also in any discipline where measurements and testing are key activities.

The Encyclopedia of GIS provides a comprehensive and authoritative guide, contributed by experts and peer-reviewed for accuracy, and alphabetically arranged for convenient access. The entries explain key software and processes used by geographers and computational scientists. Major overviews are provided for nearly 200 topics: Geoinformatics, Spatial Cognition, and Location-Based Services and more. Shorter entries define specific terms and concepts. The reference will be published as a print volume with abundant black and white art, and simultaneously as an XML online reference with hyperlinked citations, cross-references, four-color art, links to web-based maps, and other interactive features.

"This book provides an overall view of the emerging field of complex data processing, highlighting the similarities between the different data, issues and approaches"--Provided by publisher.

Storytelling with Data

Business Analytics

Using Vision to Think

Embodying Data

Thematic Area, HCI 2020, Held as Part of the 22nd International Conference, HCII 2020, Copenhagen, Denmark, July 19–24, 2020, Proceedings, Part I

Business Applications of Neural Networks

Foundations, Techniques, and Applications

A revision of Openshaw and Abrahart's seminal work, GeoComputation, Second Edition retains influences of its originators while also providing updated, state-of-the-art information on changes in the computational environment. In keeping with the field's development, this new edition takes a broader view and provides comprehensive coverage across the

This book constitutes the refereed proceedings of the 345h International Conference on Conceptual Modeling, ER 2016, held in Gifu, Japan, in November 2016. The 23 full and 18 short papers presented together with 3 keynotes were carefully reviewed and selected from 113 submissions. The papers are organized in topical sections on Analytics and Conceptual Modeling; Conceptual Modeling and Ontologies; Requirements Engineering; Advanced Conceptual Modeling; Semantic Annotations; Modeling and Executing Business Processes; Business Process Management and Modeling; Applications and Experiments of Conceptual Modeling; Schema Mapping; Conceptual Modeling Guidance; and Goal Modeling.

9

This groundbreaking book defines the emerging field of information visualization and offers the first-ever collection of the classic papers of the discipline, with introductions and analytical discussions of each topic and paper. The authors' intention is to present papers that focus on the use of visualization to discover relationships, using interactive graphics to amplify thought. This book is intended for research professionals in academia and industry; new graduate students and professors who want to begin work in this burgeoning field; professionals involved in financial data analysis, statistics, and information design; scientific data managers; and professionals involved in medical, bioinformatics, and other areas. Features Full-color reproduction throughout Author power team - an exciting and timely collaboration between the field's pioneering, most-respected names The only book on Information Visualization with the depth necessary for use as a text or as a reference for the information professional Text includes the classic source papers as well as a collection of cutting edge work

Visualization in Scientific Computing '98

Database Technologies: Concepts, Methodologies, Tools, and Applications

Interactive Data Visualization

Designing Data Visualizations

XML-based Technologies for the XML-based Web

ICTs for Urban Development and Monitoring

Interactive Visualization and Exploration of High-dimensional Data

Integrating cutting-edge technology with traditional cartographic principles, this text provides a framework for effectively visualizing and analyzing geospatial data. It gives students critical concepts and methods for harnessing the enormous amount of geospatial data that is available on the Internet and creating maps that can support real-world decision making. The writing style is straightforward and accessible. Illustrated throughout with highly instructive diagrams and sample maps, the book includes 58 color plates.

The International Symposium on Spatial Data Handling is the premier research forum for Geographic Information Science. The Symposium is particularly strong in respect to identifying significant new developments in this field. The papers published in this volume are carefully refereed by an international programme committee composed of experts in various areas of GIS who are especially renowned for their scientific innovation.

In recent years, the science of managing and analyzing large datasets has emerged as a critical area of research. In the race to answer vital questions and make knowledgeable decisions, impressive amounts of data are now being generated at a rapid pace, increasing the opportunities and challenges associated with the ability to effectively analyze this data.

Due to rapid advances in hardware and software technologies, network infrastructure and data have become increasingly complex, requiring efforts to more effectively comprehend and analyze network topologies and information systems. Innovative Approaches of Data Visualization and Visual Analytics evaluates the latest trends and developments in force-based data visualization techniques, addressing issues in the design, development, evaluation, and application of algorithms and network topologies. This book will assist professionals and researchers working in the fields of data analysis and information science, as well as students in computer science and computer engineering, in developing increasingly effective methods of knowledge creation, management, and preservation.

Human Aspects of IT for the Aged Population. Aging, Design and User Experience

35th International Conference, ER 2016, Gifu, Japan, November 14-17, 2016, Proceedings

Self-Organising Maps

The State-of-the-art of Real-world Applications

Data Analysis and Prediction Algorithms with R

Representing Informational Relationships

Visual Cues

Advanced Data Mining Tools and Methods for Social Computing explores advances in the latest data mining tools, methods, algorithms and the architectures being developed specifically for social computing and social network analysis. The book reviews major emerging trends in technology that are supporting current advancements in social networks, including data mining techniques and tools. It also aims to highlight the advancement of conventional approaches in the field of social networking. Chapter coverage includes reviews of novel techniques and state-of-the-art advances in the area of data mining, machine learning, soft computing techniques, and their applications in the field of social network analysis. Provides insights into the latest research trends in social network analysis Covers a broad range of data mining tools and methods for social computing and analysis Includes practical examples and case studies across a range of tools and methods Features coding examples and supplementary data sets in every chapter

Introduction to Data Science: Data Analysis and Prediction Algorithms with R introduces concepts and skills that can help you tackle real-world data analysis challenges. It covers concepts from probability, statistical inference, linear regression, and machine learning. It also helps you develop skills such as R programming, data wrangling, data visualization, predictive algorithm building, file organization with UNIX/Linux shell, version control with Git and GitHub, and reproducible document preparation. This book is a textbook for a first course in data science. No previous knowledge of R is necessary, although some experience with programming may be helpful. The book is divided into six parts: R, data visualization, statistics with R, data wrangling, machine learning, and productivity tools. Each part has several chapters meant to be presented as one lecture. The author uses motivating case studies that realistically mimic a data scientist's experience. He starts by asking specific questions and answers these through data analysis so concepts are learned as a means to answering the questions. Examples of the case studies included are: US murder rates by state, self-reported student heights, trends in world health and economics, the impact of vaccines on infectious disease rates, the financial crisis of 2007-2008, election forecasting, building a baseball team, image processing of hand-written digits, and movie recommendation systems. The statistical concepts used to answer the case study questions are only briefly introduced, so complementing with a probability and statistics textbook is highly recommended for in-depth understanding of these concepts. If you read and understand the chapters and complete the exercises, you will be prepared to learn the more advanced concepts and skills needed to become an expert.

"The Universal Mind: The Evolution of Machine Intelligence and Human Psychology" There is the perception of being totally omniscient where one has access to all knowledge having a complete understanding of everything. There is also the perception of being totally "One with the Universe", "One with Nature" or "the Universal Mind". During this time one is also experiencing the feeling of total love, acceptance and peace. This book examines the relationship of mind as intelligence and consciousness to matter-energy and space-time. The concepts of Universal Mind or Collective Unconsciousness are discussed and related to physical phenomena such as the holographic distribution of information throughout all of space and the universe. From the paintings of Salvador Dalí to Carl Jung's Archetypes and his Red Book, and how they describe our collective subconscious, to Machine Learning and Whole Genome Sequencing. The Universal Mind explores the collective world consciousness, super-intelligence, machine intelligence and the practical applications in engineering, medicine, law, and politics. 537 Pages. Tags: Philosophy, Computer Science, Collective Consciousness, Artificial Intelligence, Technological Singularity, Analytical Psychology.

The two-volume set LNCS 10297 + 10298 constitutes the refereed proceedings of the Third International Conference on Human Aspects of IT for the Aged Population, ITAP 2017, held as part of HCI International 2017 in Vancouver, BC, Canada. HCII 2017 received a total of 4340 submissions, of which 1228 papers were accepted for publication after a careful reviewing process. The 83 papers presented in the two volumes of ITAP 2017 were organized in topical sections as follows: Part I: aging and technology acceptance; user-centred design for the elderly; product design for the elderly; aging and user experience; digital literacy and training. Part II: mobile and wearable interaction for the elderly; aging and social media; silver and intergenerational gaming; health care and assistive technologies and services for the elderly; aging and learning, working and leisure.

Encyclopedia of GIS

Applications in Geographic Information Science

Concepts, Methodologies, Tools, and Applications

Cartography

Data Visualization

Third International Conference, ITAP 2017, Held as Part of HCI International 2017, Vancouver, BC, Canada, July 9-14, 2017, Proceedings, Part I

A Data Visualization Guide for Business Professionals

This book is the result of a special workshop on Spatial Computing which brought together experts in computer vision, visualization, multimedia and geographic information systems to discuss common problems and applications. The common theme of the workshop was the need to integrate human perception and domain knowledge with developing representations and solutions to problems which necessarily involve the interpretation of sensed data. The overwhelming conclusion was that these different areas of spatial computing should be communicating more than is done at present and that such workshops and publications would help this process. Contents:Foreword (T Caelli et al.)Bayesian Paradigms in Image Processing (Z-Q Liu)Robot Navigation by Visual Dead-Reckoning: Inspiration From Insects (M V Srinivasan et al.)Assessing Feature Importance in the Context of Object Recognition (G A W West)Geometric Variations: Analysis, Optimisation and Control (B T Daniel et al.)Using Aspect Graphs to Control the Recovery and Tracking of Deformable Models (S J Dickinson & D Metaxas)The Role of Machine Learning in Building Image Interpretation Systems (T Caelli & W F Bischof)Recent Advances in Graph Matching (H Bunke & B T Messmer)Cooperative Spatial Reasoning for Image Understanding (T Matsuyama & T Wada)Human Understanding Limits in Visualization (A J Maeder)A Strategy and Architecture for the Visualisation of Complex Geographical Datasets (M Gahegan & D O'Bien)Visualizing Spatial Data: The Problem of Paradigms (P K Robertson)The Visitors Guide: A Simple Video Reuse Application (K Shearer et al.)Conceptual Representation for Multimedia Information (R W Smith et al.) Readership: Computer scientists. keywords:Machine Learning and Vision;Visualization;Geograpgic Information Systems;Object Recognition;Surveillance;Multimedia;Image Understanding

Visualization is the process of representing data, information, and knowledge in a visual form to support the tasks of exploration, confirmation, presentation, and understanding. This book is designed as a textbook for students, researchers, analysts, professionals, and designers of visualization techniques, tools, and systems. It covers the full spectrum of the field, including mathematical and analytical aspects, ranging from its foundations to human visual perception; from coded algorithms for different types of data, information and tasks to the design and evaluation of new visualization techniques. Sample programs are provided as starting points for building one's own visualization tools. Numerous data sets have been made available that highlight different application areas and allow readers to evaluate the strengths and weaknesses of different visualization methods. Exercises, programming projects, and related readings are given for each chapter. The book concludes with an examination of several existing visualization systems and projections on the future of the field.

This is the first book devoted to both SVG and X3D as a new and universal means of visualizing information. It presents the state-of-the-art research emerging in this novel area and introduces SVG and X3D fundamentals and leading authoring tools. The key topics covered include: - The foundations of SVG and X3D - Data, information, knowledge and network visualization - Advanced and distributed user interfaces - Visualizing metadata and the Semantic Web - Visual interfaces to Web services - New trends and paradigms in publishing and Interactive TV - Displaying geographically referenced data and chemical structures - Advanced use of Adobe Illustrator and X3D-Edit authoring tools This book will be essential reading not only for researchers, Web developers and graduate students but also for undergraduates and everyone who is interested in using the next-generation computer graphics on their websites.

Data visualization is an efficient and effective medium for communicating large amounts of information, but the design process can often seem like an unexplainable creative endeavor. This concise book aims to demystify the design process by showing you how to use a linear decision-making process to encode your information visually. Delve into different kinds of visualization, including infographics and visual art, and explore the influences at work in each one. Then learn how to apply these concepts to your design process. Learn data visualization classifications, including explanatory, exploratory, and hybrid Discover how three fundamental influences—the designer, the reader, and the data—shape what you create Learn how to describe the specific goal of your visualization and identify the supporting data Decide the spatial position of your visual entities with axes Encode the various dimensions of your data with appropriate visual properties, such as shape and color See visualization best practices and suggestions for encoding various specific data types

Visualizing Information Using SVG and X3D

Visualization of Spatial Data

Handbook of Research on E-Planning: ICTs for Urban Development and Monitoring

Data Mining and Exploration

The Evolution of Machine Intelligence and Human Psychology

From Traditional Statistics to Modern Data Science

GeoComputation

Self-Organising Maps: Applications in GI Science brings together the latest geographical research where extensive use has been made of the SOM algorithm, and provides readers with a snapshot of these tools that can then be adapted and used in new research projects. The book begins with an overview of the SOM technique and the most commonly used (and freely available) software; it is then sectioned to look at the different uses of the technique, namely clustering, data mining and cartography, from a range of application-areas in the biophysical and socio-economic environments. Only book that takes SOM algorithm to the GIS and Geography research communities The Editors draw together expert contributors from the UK, Europe, USA, New Zealand, and South Africa Covers a range of techniques in clustering, data mining cartography, all featuring an appropriate case study

"This reference expands the field of database technologies through four-volumes of in-depth, advanced research articles from nearly 300 of the world's leading professionals"--Provided by publisher.

This book is the outcome of the Dagstuhl Seminar on "Information Visualization -- Human-Centered Issues in Visual Representation, Interaction, and Evaluation" held at Dagstuhl Castle, Germany, from May 28 to June 1, 2007. Information Visualization (InfoVis) is a relatively new research area, which focuses on the use of visualization techniques to help people understand and analyze data. This book documents and extends the findings and discussions of the various sessions in detail. The seven contributions cover the most important topics: There are general reflections on the value of information visualization; evaluating information visualizations; theoretical foundations of information visualization; teaching information visualization. And specific aspects on creation and collaboration: engaging new audiences for information visualization; process and pitfalls in writing information visualization research papers; and visual analytics: definition, process, and challenges.

Don't simply show your data—tell a story with it! Storytelling with Data teaches you the fundamentals of data visualization and how to communicate effectively with data. You'll discover the power of storytelling and the way to make data a pivotal point in your story. The lessons in this illuminative text are grounded in theory, but made accessible through numerous real-world examples—ready for immediate application to your next graph or presentation. Storytelling is not an inherent skill, especially when it comes to data visualization, and the tools at our disposal don't make it any easier. This book demonstrates how to go beyond conventional tools to reach the root of your data, and how to use your data to create an engaging, informative, compelling story. Specifically, you'll learn how to: Understand the importance of context and audience Determine the appropriate type of graph for your situation Recognize and eliminate the clutter clouding your information Direct your audience's attention to the most important parts of your data Think like a designer and utilize concepts of design in data visualization Leverage the power of storytelling to help your message resonate with your audience Together, the lessons in this book will help you turn your data into high impact visual stories that stick with your audience. Rid your world of ineffective graphs, one exploding 3D pie chart at a time. There is a story in your data—Storytelling with Data will give you the skills and power to tell it!

Developments in Spatial Data Handling

Processing and Managing Complex Data for Decision Support

Human-Centered Issues and Perspectives

Readings in Information Visualization

Data Warehousing and Mining: Concepts, Methodologies, Tools, and Applications

A Practical Introduction