

## Springer Handbook Of Geographic Information

"The definitive guide to a technology that succeeds or fails depending upon our ability to accommodate societal context and structures. This handbook is lucid, integrative, comprehensive and, above all, prescient in its interpretation of GIS implementation as a societal process." - Paul Longley, University College London

"This is truly a handbook - a book you will want to keep on hand for frequent reference and to which GIS professors should direct students entering our field...

Selection of a few of the chapters for individual attention is difficult because each one contributes meaningfully to the overall message of this volume. An important collection of articles that will set the tone for the next two decades of discourse and research about GIS and society." - Journal of Geographical Analysis

Over the past twenty years research on the evolving relationship between GIS and Society has been expanding into a wide variety of topical areas, becoming in the process an increasingly challenging and multifaceted endeavour.

The SAGE Handbook of GIS and Society is a retrospective and prospective overview of GIS and Society research that provides an expansive and critical assessment of work in that field. Emphasizing the theoretical, methodological and substantive diversity within GIS and Society research, the book highlights the distinctiveness and intellectual coherence of the subject as a field of study, while also examining its resonances with and between key themes, and among disciplines

## Read Online Springer Handbook Of Geographic Information

ranging from geography and computer science to sociology, anthropology, and the health and environmental sciences. Comprising 27 chapters, often with an international focus, the book is organized into six sections: Foundations of Geographic Information and Society Geographical Information and Modern Life Alternative Representations of Geographic Information and Society Organizations and Institutions Participation and Community Issues Value, Fairness, and Privacy Aimed at academics, researchers, postgraduates, and GIS practitioners, this Handbook will be the basic reference for any inquiry applying GIS to societal issues. This book explores the roles in which volunteered and professional information play within neogeography from a human factors perspective. The unique advantages of each information type are considered alongside how they may be utilised to create products and services delivering highly functional, efficient and satisfying experiences to their users. The overall aim of this book is to address the issue of how Volunteered Geographic Information (VGI) can be combined with Professional Geographic Information (PGI) to satisfy the information search requirements of consumer-users via highly usable mashups. Firstly, this required the development of an understanding of the way different users perceive VGI and PGI in terms of its benefits to their activities and information needs. Secondly, the benefits that VGI may bring to the user experience of a mashup (which cannot be attained through the use of PGI) needed to be understood. In order to achieve this, a user centred design perspective was implemented throughout the

## Read Online Springer Handbook Of Geographic Information

research.

This book gathers various perspectives on modern map production. Its primary focus is on the new paradigm of “sharing and reuse,” which is based on decentralized, service-oriented access to spatial data sources. Service-Oriented Mapping is one of the main paradigms used to embed big data and distributed sources in modern map production, without the need to own the sources. To be stable and reliable, this architecture requires specific frameworks, tools and procedures. In addition to the technological structures, organizational aspects and geographic information system (GIS) capabilities provide powerful tools to make modern geoinformation management successful. Addressing a range of aspects, including the implementation of the semantic web in geoinformatics, using big data for geospatial visualization, standardization initiatives, and the European spatial data infrastructure, the book offers a comprehensive introduction to decentralized map production. .

Geographic Information Systems: A Guide to accessing, spreadsheets, and data base the Technology was born of need-the need management. Recently, geographic infor for a comprehensive work on the emerg mation management technology came to ing field of geographic information man the desktop, signaling a new era of in agement technology. creasing use and popularity. Enthusiastic We encountered the need often in our users have long been the main source of work at PlanGraphics, Inc. , a leading com grassroots support and growth. We perceive at least three broad audi puter

## Read Online Springer Handbook Of Geographic Information

consulting firm that specializes in ences for this book: 1) executives, man the design and implementation of geo agers, professionals, and other lay people; graphic information systems (GIS) and as 2) practitioners and technicians; and 3) stu sists organizations in using the technology to solve problems and perform work more dents and academicians. We recognize efficiently. We needed it, our clients that Geographic Information Systems cannot needed it, and it didn't exist. completely satisfy the disparate needs of Geographic information management any of these groups, but we have tried to give each of these audiences a foundation technology- using computers to map, draw, store, and manipulate spatial data upon which to build. Our purpose is two fold. We hope to aid those considering, evolved independently in many places with many variations. This book navigates the numerous American and Canadian cartographic resources available in print, and online, offering information on how to locate and access the large variety of resources. Cartographic materials are highlighted and summarized, along with lists of map libraries and geospatial centers, and related professional associations.

This book constitutes the refereed proceedings of the 8th International Conference on Geographic Information Science, GIScience 2014, held in Vienna, Austria in September 2014. The 23 full papers presented were carefully reviewed and selected from various submissions. The papers are organized in topical sections such as information visualization, spatial analysis, user-generated content, semantic models,

## Read Online Springer Handbook Of Geographic Information

wayfinding and navigation, spatial algorithms, and spatial relations.

Computer science provides a powerful tool that was virtually unknown three generations ago. Some of the classical fields of knowledge are geodesy (surveying), cartography, and geography. Electronics have revolutionized geodetic methods. Cartography has faced the dominance of the computer that results in simplified cartographic products. All three fields make use of basic components such as the Internet and databases. The Springer Handbook of Geographic Information is organized in three parts, Basics, Geographic Information and Applications. Some parts of the basics belong to the larger field of computer science. However, the reader gets a comprehensive view on geographic information because the topics selected from computer science have a close relation to geographic information. The Springer Handbook of Geographic Information is written for scientists at universities and industry as well as advanced and PhD students.

This comprehensive handbook covers all fundamentals of electrochemistry for contemporary applications. It provides a rich presentation of related topics of electrochemistry with a clear focus on energy technologies. It covers all aspects of electrochemistry starting with theoretical concepts and basic laws of thermodynamics, non-equilibrium thermodynamics and multiscale modeling. It further gathers the basic experimental methods such as potentiometry, reference electrodes, ion-sensitive electrodes, voltammetry and amperometry. The contents cover subjects related to mass transport, the electric double layer, ohmic losses and experimentation affecting electrochemical reactions. These

## Read Online Springer Handbook Of Geographic Information

aspects of electrochemistry are especially examined in view of specific energy technologies including batteries, polymer electrolyte and biological fuel cells, electrochemical capacitors, electrochemical hydrogen production and photoelectrochemistry. Organized in six parts, the overall complexity of electrochemistry is presented and makes this handbook an authoritative reference and definitive source for advanced students, professionals and scientists particularly interested in industrial and energy applications.

This SpringerBrief discusses the characteristics of spatiotemporal movement data, including uncertainty and scale. It investigates three core aspects of Computational Movement Analysis: Conceptual modeling of movement and movement spaces, spatiotemporal analysis methods aiming at a better understanding of movement processes (with a focus on data mining for movement patterns), and using decentralized spatial computing methods in movement analysis. The author presents Computational Movement Analysis as an interdisciplinary umbrella for analyzing movement processes with methods from a range of fields including GIScience, spatiotemporal databases and data mining. Key challenges in Computational Movement Analysis include bridging the semantic gap, privacy issues when movement data involves people, incorporating big and open data, and opportunities for decentralized movement analysis arising from the internet of things. The interdisciplinary concepts of Computational Movement Analysis make this an important book for professionals and students in computer science, geographic information science and its application areas, especially movement ecology and transportation research.

Decision makers, such as government officials, need to better understand human activity in order to make informed decisions. With the ability to measure and explore geographic

## Read Online Springer Handbook Of Geographic Information

space through the use of geospatial intelligence data sources including imagery and mapping data, they are better able to measure factors affecting the human population. As a broad field of study, geospatial research has applications in a variety of fields including military science, environmental science, civil engineering, and space exploration. *Geospatial Intelligence: Concepts, Methodologies, Tools, and Applications* explores multidisciplinary applications of geographic information systems to describe, assess, and visually depict physical features and to gather data, information, and knowledge regarding human activity. Highlighting a range of topics such as geovisualization, spatial analysis, and landscape mapping, this multi-volume book is ideally designed for data scientists, engineers, government agencies, researchers, and graduate-level students in GIS programs.

Novel technologies are playing an important role in the development of crop and livestock farming and have the potential to be the key drivers of sustainable intensification of agricultural systems. In particular, new sensors are now available with reduced dimensions, reduced costs, and increased performances, which can be implemented and integrated in production systems, providing more data and eventually an increase in information. It is of great importance to support the digital transformation, precision agriculture, and smart farming, and to eventually allow a revolution in the way food is produced. In order to exploit these results, authoritative studies from the research world are still needed to support the development and implementation of new solutions and best practices. This Special Issue is aimed at bringing together recent developments related to novel sensors and their proved or potential applications in agriculture.

This book consists of 35 chapters presenting different

## Read Online Springer Handbook Of Geographic Information

theoretical and practical aspects of Intelligent Information and Database Systems. Nowadays both Intelligent and Database Systems are applied in most of the areas of human activities which necessitates further research in these areas. In this book various interesting issues related to the intelligent information models and methods as well as their advanced applications, database systems applications, data models and their analysis and digital multimedia methods and applications are presented and discussed both from the practical and theoretical points of view. The book is organized in four parts devoted to intelligent systems models and methods, intelligent systems advanced applications, database systems methods and applications and multimedia systems methods and applications. The book will be interesting for practitioners and researchers, especially graduate and PhD students of information technology and computer science, as well more experienced academics and specialists interested in developing and verification of intelligent information, database and multimedia systems models, methods and applications. The readers of this volume are enabled to find many inspiring ideas and motivating practical examples that will help them in the current and future work.

In recent years, the world has been changing considerably. Within the many obstacles, barriers, and opportunities, three significant challenges should be considered for the future planning of our territories and cities: seeking to achieve Sustainable Development Goals (SDG), facing climate change, and performing a shift towards digitalization. Considering these three challenges, we can work toward a more sustainable future for the environment. Sustainable Development Goals, Climate Change, and Digitalization Challenges in Planning elaborates on sustainability issues in the planning and development field regarding the

## Read Online Springer Handbook Of Geographic Information

environment. This text promotes understanding about the dynamics, challenges, and opportunities for the new decade regarding our common future planning. Covering topics such as circular economy, economic-ecological principles, and sustainable resilience, this book is essential for academicians, researchers, policymakers, environmentalists, scientists, technicians, decision makers, practitioners, and students.

This book collects innovative research presented at the 19th Conference of the Association of Geographic Information Laboratories in Europe (AGILE) on Geographic Information Science, held in Helsinki, Finland in 2016.

This book addresses how accelerating advances in information and communication technology, mobile technology, and location-aware technology have fundamentally changed the ways how social, political, economic and transportation systems work in today's globally connected world. It delivers on many exciting research questions related to human dynamics at both disaggregate and aggregate levels that attract the attention of researchers from a wide range of disciplines. Human Dynamics Research involves theoretical perspectives, space-time analytics, modeling human dynamics, urban analytics, social media and big data, travel dynamics, privacy issues, development of smart cities, and problems and prospects of human dynamics research. This book includes contributions on theoretical, technical, or application aspects of human dynamics research from different disciplines. Appealing to researchers, scholars and students across a wide range of topics and disciplines including: urban studies, space-time, mobility and the internet, social media, big data,

## Read Online Springer Handbook Of Geographic Information

behavioral geography and spatio-temporal-network visualization, this book offers a glimpse at the cutting edge of research on human dynamics.

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 field of *GeoComputation*. See *What's New in the Second Edition*: Coverage of ubiquitous computing, the GeoWeb, reproducible research, open access, and agent-based modelling Expanded chapter on Genetic Programming and a separate chapter developed on Evolutionary Algorithms Ten chapters updated by the same or new authors and eight new chapters added to reflect state of the art Each chapter is a stand-alone entity that covers a particular topic. You can simply dip in and out or read it from cover to cover. The opening chapter by Stan Openshaw has been preserved, with only a limited number of minor essential modifications having been enacted. This is not just a matter of respect.

Openshaw's work is eloquent, prophetic, and his overall message remains largely unchanged. In contrast to other books on this subject, *GeoComputation: Second Edition* supplies a state-of-the-art review of all major areas in *GeoComputation* with chapters written especially for this book by invited specialists. This approach helps develop and expand a computational culture, one that can exploit the ever-increasing richness of modern geographical and

## Read Online Springer Handbook Of Geographic Information

geospatial datasets. It also supplies an instructional guide to be kept within easy reach for regular access and when need arises.

This book constitutes the refereed proceedings of the 4th International Conference on Geographic Information Science, GIScience 2006. The book presents 26 revised full papers. Among traditional topics addressed are spatial representations and data structures, spatial and temporal reasoning, computational geometry, spatial analysis, and databases. Many papers deal with navigation, interoperability, dynamic modeling, ontology, and semantics. Geosensors, location privacy, social issues and GI research networks rank among the new directions covered.

The book deals with the integration of temporal information in Geographic Information Systems. The main purpose of an historical or time-integrative GIS is to reproduce spatio-temporal processes or sequents of events in the real world in the form of a model. The model thus making them accessible for spatial query, analysis and visualization. This volume reflects both theoretical thoughts on the interrelations of space and time, as well as practical examples taken from various fields of application (e.g. business data warehousing, demographics, history and spatial analysis).

This volume explores from a legal perspective, how blockchain works. Perhaps more than ever before, this new technology requires us to take a multidisciplinary approach. The contributing authors, which include distinguished academics, public officials from important national authorities, and market operators, discuss and

demonstrate how this technology can be a driver of innovation and yield positive effects in our societies, legal systems and economic/financial system. In particular, they present critical analyses of the potential benefits and legal risks of distributed ledger technology, while also assessing the opportunities offered by blockchain, and possible modes of regulating it. Accordingly, the discussions chiefly focus on the law and governance of blockchain, and thus on the paradigm shift that this technology can bring about.

The papers in this volume are the refereed papers presented at AI-2013, the Thirty-third SGA International Conference on Innovative Techniques and Applications of Artificial Intelligence, held in Cambridge in December 2013 in both the technical and the application streams. They present new and innovative developments and applications, divided into technical stream sections on Knowledge Discovery and Data Mining I, Knowledge Discovery and Data Mining II, Intelligent Agents, Representation and Reasoning, and Machine Learning and Constraint Programming, followed by application stream sections on Medical Applications, Applications in Education and Information Science, and AI Applications. The volume also includes the text of short papers presented as posters at the conference. This is the thirtieth volume in the Research and Development in Intelligent Systems series, which also incorporates the twenty-first volume in the Applications and Innovations in Intelligent Systems series. These series are essential reading for those who wish to keep up to date with developments in this important field.

## Read Online Springer Handbook Of Geographic Information

For the seventh consecutive year, the AGILE promotes the publication of a book collecting high-level scientific papers from unpublished fundamental scientific research in the field of Geographic Information Science. As the agenda for Europe 2020 is currently being set, this book demonstrates how geographic information science is at the heart of Europe. The contributions open perspectives for innovative services that will strengthen our European economy, and which will inform citizens about their environment while preserving their privacy. The latest challenges of spatial data infrastructures are addressed, such as the connection with the Web vocabularies or the representation of genealogy. User generated data (through social networks or through interactive cameras and software) is also an important breakthrough in our domain. A trend to deal more and more with time, events, ancient data, and activities is noticeable this year as well. This volume collects the 23 best full papers presented during the 16th AGILE Conference on Geographic Information Science, held between 14 and 17 May 2013 in Leuven, Belgium.

This book constitutes the refereed proceedings of the 23rd Australasian Joint Conference on Rough Sets and Intelligent Systems Paradigms, RSEISP 2014, held in Granada and Madrid, Spain, in July 2014. RSEISP 2014 was held along with the 9th International Conference on Rough Sets and Current Trends in Computing, RSCTC 2014, as a major part of the 2014 Joint Rough Set Symposium, JRS 2014. JRS 2014 received 40 revised full papers and 37

revised short papers which were carefully reviewed and selected from 120 submissions and presented in two volumes. This volume contains the papers accepted for the conference RSEISP 2014, as well as the three invited papers presented at the conference. The papers are organized in topical sections on plenary lecture and tutorial papers; foundations of rough set theory; granular computing and covering-based rough sets; applications of rough sets; induction of decision rules - theory and practice; knowledge discovery; spatial data analysis and spatial databases; information extraction from images.

This book provides a concise, yet comprehensive overview of the many facets relating to human health risk assessments in relation to chemical exposure problems. It presents some very important tools and methodologies that can be used to address chemical exposure and public health risk management problems in a consistent, efficient, and cost-effective manner. On the whole, the book represents a collection and synthesis of the principal elements of the risk assessment process that may be used to more effectively address issues pertaining to human exposures to chemicals found in modern societies. This also includes an elaboration of pertinent risk assessment concepts and techniques/methodologies for performing human health risk assessments. Written for both the novice and the experienced, the

subject matter of this book is an attempt at offering a simplified and systematic presentation of public health risk assessment methods and application tools – all these facilitated by a layout that will carefully navigate the user through the major processes involved. A number of illustrative example problems are interspersed throughout the book, in order to help present the book in an easy-to-follow, pragmatic manner.

This SpringerBrief presents the fundamental concepts of a specialized class of data stream, spatio-temporal data streams, and demonstrates their distributed processing using Big Data frameworks and platforms. It explores a consistent framework which facilitates a thorough understanding of all different facets of the technology, from basic definitions to state-of-the-art techniques. Key topics include spatio-temporal continuous queries, distributed stream processing, SQL-like language embedding, and trajectory stream clustering. Over the course of the book, the reader will become familiar with spatio-temporal data streams management and data flow processing, which enables the analysis of huge volumes of location-aware continuous data streams.

Applications range from mobile object tracking and real-time intelligent transportation systems to traffic monitoring and complex event processing. Spatio-Temporal Data Streams is a valuable resource for

## Read Online Springer Handbook Of Geographic Information

researchers studying spatio-temporal data streams and Big Data analytics, as well as data engineers and data scientists solving data management and analytics problems associated with this class of data. In this book the author's theoretical framework builds on linguistic and psychological research, arguing that similar image-schematic notions should be grouped together into interconnected family hierarchies, with complexity increasing with regard to the addition of spatial and conceptual primitives. She introduces an image schema logic as a language to model image schemas, and she shows how the semantic content of image schemas can be used to improve computational concept invention. The book will be of value to researchers in artificial intelligence, cognitive science, psychology, and creativity.

This Handbook is an essential reference and a guide to the rapidly expanding field of Geographic Information Science. Designed for students and researchers who want an in-depth treatment of the subject, including background information Comprises around 40 substantial essays, each written by a recognized expert in a particular area Covers the full spectrum of research in GIS Surveys the increasing number of applications of GIS Predicts how GIS is likely to evolve in the near future

Written by more than 60 contributors who depict the remarkable transformation of the public management profession by computers, this book presents the

## Read Online Springer Handbook Of Geographic Information

historical, institutional, legal, organizational, functional, policy, and theoretical background that constitutes IT literacy for public service. The book describes the application of IT to training, budgeting, and policy simulation at the federal level, and to community planning, community telecommunications, and welfare at the state level. Providing a broad and timely overview of IT as it applies to the public sector the book collects critical knowledge and delivers insight into contemporary uses of IT in the public sphere.

The Springer Handbook of Bio-/Neuro-Informatics is the first published book in one volume that explains together the basics and the state-of-the-art of two major science disciplines in their interaction and mutual relationship, namely: information sciences, bioinformatics and neuroinformatics. Bioinformatics is the area of science which is concerned with the information processes in biology and the development and applications of methods, tools and systems for storing and processing of biological information thus facilitating new knowledge discovery. Neuroinformatics is the area of science which is concerned with the information processes in biology and the development and applications of methods, tools and systems for storing and processing of biological information thus facilitating new knowledge discovery. The text contains 62 chapters organized in 12 parts, 6 of them covering

## Read Online Springer Handbook Of Geographic Information

topics from information science and bioinformatics, and 6 cover topics from information science and neuroinformatics. Each chapter consists of three main sections: introduction to the subject area, presentation of methods and advanced and future developments. The Springer Handbook of Bio-/Neuroinformatics can be used as both a textbook and as a reference for postgraduate study and advanced research in these areas. The target audience includes students, scientists, and practitioners from the areas of information, biological and neurosciences. With Forewords by Shun-ichi Amari of the Brain Science Institute, RIKEN, Saitama and Karlheinz Meier of the University of Heidelberg, Kirchhoff-Institute of Physics and Co-Director of the Human Brain Project.

This book constitutes the refereed proceedings of the 6th International Conference on Geographic Information Science, GIScience 2010, held in Zurich, Switzerland, in September 2010. The 22 revised full papers presented were carefully reviewed and selected from 87 submissions. While traditional research topics such as spatio-temporal representations, spatial relations, interoperability, geographic databases, cartographic generalization, geographic visualization, navigation, spatial cognition, are alive and well in GIScience, research on how to handle massive and rapidly growing databases of dynamic space-time phenomena at fine-

## Read Online Springer Handbook Of Geographic Information

grained resolution for example, generated through sensor networks, has clearly emerged as a new and popular research frontier in the field.

This comprehensive Handbook summarizes existing work and presents new concepts and empirical results from leading scholars in the multidisciplinary field of behavioral and cognitive geography, the study of the human mind, and activity in and concerning space, place, and environment. It provides the broadest and most inclusive coverage of the field so far, including work relevant to human geography, cartography, and geographic information science.

The history and future of geographic information (GI) in the context of big data creates new avenues of concern over its organization, access and use. In this book the authors explore both the background and present challenges facing the preservation of GI, focusing on the roles of librarians, archivists, data scientists, and other information professionals in the creation of GI records for its organization, access, and use.

This handbook covers a wide range of topics related to the collection, processing, analysis, and use of geospatial data in their various forms. This handbook provides an overview of how spatial computing technologies for big data can be organized and implemented to solve real-world problems. Diverse subdomains ranging from indoor mapping and

navigation over trajectory computing to earth observation from space, are also present in this handbook. It combines fundamental contributions focusing on spatio-textual analysis, uncertain databases, and spatial statistics with application examples such as road network detection or colocation detection using GPUs. In summary, this handbook gives an essential introduction and overview of the rich field of spatial information science and big geospatial data. It introduces three different perspectives, which together define the field of big geospatial data: a societal, governmental, and governance perspective. It discusses questions of how the acquisition, distribution and exploitation of big geospatial data must be organized both on the scale of companies and countries. A second perspective is a theory-oriented set of contributions on arbitrary spatial data with contributions introducing into the exciting field of spatial statistics or into uncertain databases. A third perspective is taking a very practical perspective to big geospatial data, ranging from chapters that describe how big geospatial data infrastructures can be implemented and how specific applications can be implemented on top of big geospatial data. This would include for example, research in historic map data, road network extraction, damage estimation from remote sensing imagery, or the analysis of spatio-textual collections and social media. This multi-disciplinary

## Read Online Springer Handbook Of Geographic Information

approach makes the book unique. This handbook can be used as a reference for undergraduate students, graduate students and researchers focused on big geospatial data. Professionals can use this book, as well as practitioners facing big collections of geospatial data.

In June/July 2008 the Institute for Geoinformation and Cartography at the Vienna University of Technology organized a scientific colloquium in this city, where 15 well-known scientists presented their ideas on research for the upcoming decade. This book contains papers prepared by the participants as well as by other researchers. The eighteen papers in this book reflect the opinion of a core group of Geoinformation scientists about future research topics. Dealing with these topics poses multiple research questions for the coming years. This is a book is a collection of articles that will be submitted as full papers to the AGILE annual international conference. These papers go through a rigorous review process and report original and unpublished fundamental scientific research. Those published cover significant research in the domain of geographic information science systems. This year the focus is on geographic information science as an enabler of smarter cities and communities, thus we expect contributions that help visualize the role and contribution of GI science in their development.

Springer Handbook of Geographic

# Read Online Springer Handbook Of Geographic Information

InformationSpringer Science & Business Media

[Copyright: d825011d9c0df92bbe5e0bce35b5ac9e](#)