

Gis For Enhanced Electric Utility Performance Artech House Power Engineering

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Environmental Geoinformatics Joseph L. Awange 2013-06-13 There is no doubt that today, perhaps more than ever before, humanity faces a myriad of complex and demanding challenges. These include natural resource depletion and environmental degradation, food and water insecurity, energy shortages, diminishing biodiversity, increasing losses from natural disasters, and climate change with its associated potentially devastating consequences, such as rising sea levels. These human-induced and natural impacts on the environment need to be well

understood in order to develop informed policies, decisions, and remedial measures to mitigate current and future negative impacts. To achieve this, continuous monitoring and management of the environment to acquire data that can be soundly and rigorously analyzed to provide information about its current state and changing patterns, and thereby allow predictions of possible future impacts, are essential. Developing pragmatic and sustainable solutions to address these and many other similar challenges requires the use of geodata and the application of geoinformatics. This book presents

the concepts and applications of geoinformatics, a multidisciplinary field that has at its core different technologies that support the acquisition, analysis and visualization of geodata for environmental monitoring and management. We depart from the 4D to the 5D data paradigm, which defines geodata accurately, consistently, rapidly and completely, in order to be useful without any restrictions in space, time or scale to represent a truly global dimension of the digital Earth. The book also features the state-of-the-art discussion of Web-GIS. The concepts and applications of geoinformatics presented in this book will be of benefit to decision-makers across a wide range of fields, including those at environmental agencies, in the emergency services,

public health and epidemiology, crime mapping, environmental management agencies, tourist industry, market analysis and e-commerce, or mineral exploration, among many others. The title and subtitle of this textbook convey a distinct message. Monitoring - the passive part in the subtitle - refers to observation and data acquisition, whereas management - the active component - stands for operation and performance. The topic is our environment, which is intimately related to geoinformatics. The overall message is: all the mentioned elements do interact and must not be separated. Hans-Peter Bahr, Prof. Dr.-Ing. Dr.h.c., Karlsruhe Institute of Technology (KIT), Germany.
Future U.S. Workforce for Geospatial Intelligence National Research

Council 2013-04-28 We live in a changing world with multiple and evolving threats to national security, including terrorism, asymmetrical warfare (conflicts between agents with different military powers or tactics), and social unrest. Visually depicting and assessing these threats using imagery and other geographically-referenced information is the mission of the National Geospatial-Intelligence Agency (NGA). As the nature of the threat evolves, so do the tools, knowledge, and skills needed to respond. The challenge for NGA is to maintain a workforce that can deal with evolving threats to national security, ongoing scientific and technological advances, and changing skills and expectations of workers. Future U.S. Workforce for Geospatial

Intelligence assesses the supply of expertise in 10 geospatial intelligence (GEOINT) fields, including 5 traditional areas (geodesy and geophysics, photogrammetry, remote sensing, cartographic science, and geographic information systems and geospatial analysis) and 5 emerging areas that could improve geospatial intelligence (GEOINT fusion, crowdsourcing, human geography, visual analytics, and forecasting). The report also identifies gaps in expertise relative to NGA's needs and suggests ways to ensure an adequate supply of geospatial intelligence expertise over the next 20 years.

BioGeomancer 2006

GIS for Enhanced Electric Utility Performance Bill Meehan 2013-07-01
This book describes how geospatial

technology in the form of a modern enterprise geographic information system (GIS) can be applied to all aspects of the electric utility business from Smart Grid to generation to transmission to distribution to the retail supply of electricity to customers. This book appeals to readers that are interested not only in the technical details of a GIS enabled electric system, but also how such a system works in the real business world.

Battery Management Systems, Volume I: Battery Modeling Gregory L. Plett 2015-09-01 Large-scale battery packs are needed in hybrid and electric vehicles, utilities grid backup and storage, and frequency-regulation applications. In order to maximize battery-pack safety, longevity, and performance, it is important to

understand how battery cells work. This first of its kind new resource focuses on developing a mathematical understanding of how electrochemical (battery) cells work, both internally and externally. This comprehensive resource derives physics-based micro-scale model equations, then continuum-scale model equations, and finally reduced-order model equations. This book describes the commonly used equivalent-circuit type battery model and develops equations for superior physics-based models of lithium-ion cells at different length scales. This resource also presents a breakthrough technology called the “discrete-time realization algorithm” that automatically converts physics-based models into high-fidelity approximate reduced-order models. Smart Grid James A. Momoh 2012-03-07

The book is written as primer hand book for addressing the fundamentals of smart grid. It provides the working definition the functions, the design criteria and the tools and techniques and technology needed for building smart grid. The book is needed to provide a working guideline in the design, analysis and development of Smart Grid. It incorporates all the essential factors of Smart Grid appropriate for enabling the performance and capability of the power system. There are no comparable books which provide information on the “how to” of the design and analysis. The book provides a fundamental discussion on the motivation for the smart grid development, the working definition and the tools for analysis and development of the Smart Grid.

Standards and requirements needed for designing new devices, systems and products are discussed; the automation and computational techniques need to ensure that the Smart Grid guarantees adaptability, foresight alongside capability of handling new systems and components are discussed. The interoperability of different renewable energy sources are included to ensure that there will be minimum changes in the existing legacy system. Overall the book evaluates different options of computational intelligence, communication technology and decision support system to design various aspects of Smart Grid. Strategies for demonstration of Smart Grid schemes on selected problems are presented. Scientific Data Mining Chandrika Kamath 2009-01-01 Chandrika Kamath

describes how techniques from the multi-disciplinary field of data mining can be used to address the modern problem of data overload in science and engineering domains. Starting with a survey of analysis problems in different applications, it identifies the common themes across these domains.

Power Grid Resiliency for Adverse Conditions Nicholas Abi-Samra
2017-09-30 Written by a leading expert in the field, this practical book offers a comprehensive understanding of the impact of extreme weather and the possible effects of climate change on the power grid. The impact and restoration of floods, winter storms, wind storms, and hurricanes as well as the effects of heat waves and dry spells on thermal power plants is

explained in detail. This book explores proven practices for successful restoration of the power grid, increased system resiliency, and ride-through after extreme weather and provides readers with examples from super storm Sandy. This book presents the effects of lack of ground moisture on transmission line performance and gives an overview of line insulation coordination, stress-strength analysis, and tower insulation strength, and then provides readers with tangible solutions. Structural hardening of power systems against storms, including wind pressure, wood poles, and vegetation management is covered. Moreover, this book provides suggestions for practical implementations to improve future smart grid resiliency.

Understanding GPS Elliott D. Kaplan
2006 Appendix B: Stability Measures
for Frequency Sources 665 Appendix
C: Free-Space Propagation Loss 669;
About the Authors 675; Index 683;
Mobile Communications Library.
Introduction to Geospatial
Information and Communication
Technology (GeoICT) Rifaat Abdalla
2016-07-25 This book is designed to
help students and researchers
understand the latest research and
development trends in the domain of
geospatial information and
communication (GeoICT) technologies.
Accordingly, it covers the
fundamentals of geospatial
information systems, spatial
positioning technologies, and
networking and mobile communications,
with a focus on OGC and OGC
standards, Internet GIS, and

location-based services. Particular
emphasis is placed on introducing
GeoICT as an integrated technology
that effectively bridges various
information-technology domains.
Engineering Asset Management Dimitris
Kiritsis 2011-02-03 Engineering Asset
Management discusses state-of-the-art
trends and developments in the
emerging field of engineering asset
management as presented at the Fourth
World Congress on Engineering Asset
Management (WCEAM). It is an
excellent reference for
practitioners, researchers and
students in the multidisciplinary
field of asset management, covering
such topics as asset condition
monitoring and intelligent
maintenance; asset data warehousing,
data mining and fusion; asset
performance and level-of-service

models; design and life-cycle integrity of physical assets; deterioration and preservation models for assets; education and training in asset management; engineering standards in asset management; fault diagnosis and prognostics; financial analysis methods for physical assets; human dimensions in integrated asset management; information quality management; information systems and knowledge management; intelligent sensors and devices; maintenance strategies in asset management; optimisation decisions in asset management; risk management in asset management; strategic asset management; and sustainability in asset management.

Classification Methods for Remotely Sensed Data Paul Mather 2001-12-06
Remote sensing is an integral part of

geography, GIS and cartography, used by academics in the field and professionals in all sorts of occupations. The 1990s saw the development of a range of new methods of classifying remote sensing images and data, both optical imaging and microwave imaging. This comprehensive survey of the various techniques published in *Sustainability in Energy and Buildings 2021* John R. Littlewood 2021-09-28 This book contains the proceedings of the 13th KES International Conference on Sustainability and Energy in Buildings 2021 (SEB2021) held in Split, Croatia, during 15–17 September 2021 organized by KES International. SEB21 invited contributions on a range of topics related to sustainable buildings and explored innovative themes regarding

sustainable energy systems. The conference formed an exciting chance to present, interact and learn about the latest research and practical developments on the subject. The conference attracted submissions from around the world. Submissions for the Full-Paper Track were subjected to a blind peer-review process. Only the best of these were selected for presentation at the conference and publication in these proceedings. It is intended that this book provides a useful and informative snapshot of recent research developments in the important and vibrant area of sustainability in energy and buildings.

Manual of Geospatial Science and Technology John D. Bossler 2001-11-22
Professionals in local and national government and in the private sector

frequently need to draw on Geographical Information Systems (GIS), Remote Sensing (RS) and Global Positioning Systems (GPS), often in an integrated manner. This manual shows a hands-on operator how to work across the range of geospatial science and technology, whether as a user or as a contractor of services employing these technologies, and without either specialist education or substantial experience. The manual covers the fundamentals of each of these topical areas, providing the requisite mathematics, computer science and physics necessary to understand how the technologies work, assuming some elementary background in calculus and physics. It also shows how the technologies can be used together and focuses on their commonalities. A number of

applications such as mapping and environmental modeling are presented, and a website accompanies the book. **Floods in a Megacity** Ashraf Dewan 2013-03-01 Flooding is one of the most devastating natural hazards in the world. Available records suggest that both flood frequency and severity are on the rise and this is likely to worsen in the context of climate change. As population, infrastructure and poverty grow rapidly in developing countries, particularly in urban agglomerations of 10 million people or more, floods could cause widespread devastation, economic damage and loss of life. Assessment of vulnerability and risk from naturally occurring phenomena is therefore imperative in order to achieve urban sustainability. This book uses geospatial techniques to

evaluate hazards, risk and vulnerability at a metropolitan scale in a data-scarce country. An empirical study was performed using remote sensing, GIS and census data. This research offers a new approach to mapping population, infrastructures and communities at risk which can greatly contribute to the deeper understanding of flood disasters in a rapidly expanding megacity. Examples shown in this book are from Dhaka Megacity, however, the techniques and methods can easily be implemented in medium to large cities of similar characteristics. The book is essential reading for hazard researchers, geospatial scientists, disaster management professionals, geographers, urban planners, and social scientists. Ashraf M. Dewan is currently a Lecturer in the

Department of Spatial Sciences at Curtin University, Western Australia (on leave from his substantive position as Associate Professor in the Geography & Environment Department at the University of Dhaka, Bangladesh).

Big Data Analytics Strategies for the Smart Grid Carol L. Stimmel

2016-04-19 By implementing a comprehensive data analytics program, utility companies can meet the continually evolving challenges of modern grids that are operationally efficient, while reconciling the demands of greenhouse gas legislation and establishing a meaningful return on investment from smart grid deployments. Readable and accessible, Big Data Analytic

A Systems Approach to Lithium-Ion Battery Management Phil Weicker

2013-11-01 The advent of lithium ion batteries has brought a significant shift in the area of large format battery systems. Previously limited to heavy and bulky lead-acid storage batteries, large format batteries were used only where absolutely necessary as a means of energy storage. The improved energy density, cycle life, power capability, and durability of lithium ion cells has given us electric and hybrid vehicles with meaningful driving range and performance, grid-tied energy storage systems for integration of renewable energy and load leveling, backup power systems and other applications. This book discusses battery management system (BMS) technology for large format lithium-ion battery packs from a systems perspective. This resource covers the future of

BMS, giving us new ways to generate, use, and store energy, and free us from the perils of non-renewable energy sources. This book provides a full update on BMS technology, covering software, hardware, integration, testing, and safety.

GIS Fundamentals Paul Bolstad 2005

Lithium-Ion Batteries and Applications: A Practical and Comprehensive Guide to Lithium-Ion Batteries and Arrays, from Toys to Towns, Volume 2, Applications Davide Andrea 2020-06-30 This comprehensive, two-volume resource provides a thorough introduction to lithium ion (Li-ion) technology. Readers get a hands-on understanding of Li-ion technology, are guided through the design and assembly of a battery, through deployment, configuration and testing. The book covers dozens of

applications, with solutions for each application provided. Volume Two focuses on small batteries in consumer products and power banks, as well as large low voltage batteries in stationary or mobile house power, telecom, residential, marine and microgrid. Traction batteries, including passenger, industrial, race vehicles, public transit, marine, submarine and aircraft are also discussed. High voltage stationary batteries grid-tied and off-grid are presented, exploring their use in grid quality, arbitrage and back-up, residential, microgrid, industrial, office buildings. Finally, the book explores what happens when accidents occur, so readers may avoid these mistakes. Written by a prominent expert in the field and packed with over 500 illustrations, these volumes

contain solutions to practical problems, making it useful for both the novice and experienced practitioners.

Microelectronics, Electromagnetics and Telecommunications P. Satish Rama Chowdary 2021-06-24 This book discusses the latest developments and outlines future trends in the fields of microelectronics, electromagnetics and telecommunication. It includes original research presented at the International Conference on Microelectronics, Electromagnetics and Telecommunication (ICMEET 2019), organized by the Department of ECE, Raghu Institute of Technology, Andhra Pradesh, India. Written by scientists, research scholars and practitioners from leading universities, engineering colleges and R&D institutes around the globe,

the papers share the latest breakthroughs in and promising solutions to the most important issues facing today's society.

Principles of Geographic Information Systems Rolf A. de By 2004

Principles of Geographical Information Systems Peter A. Burrough 2015

Urban Informatics Wenzhong Shi 2021-04-06 This open access book is the first to systematically introduce the principles of urban informatics and its application to every aspect of the city that involves its functioning, control, management, and future planning. It introduces new models and tools being developed to understand and implement these technologies that enable cities to function more efficiently – to become 'smart' and 'sustainable'. The smart

city has quickly emerged as computers have become ever smaller to the point where they can be embedded into the very fabric of the city, as well as being central to new ways in which the population can communicate and act. When cities are wired in this way, they have the potential to become sentient and responsive, generating massive streams of 'big' data in real time as well as providing immense opportunities for extracting new forms of urban data through crowdsourcing. This book offers a comprehensive review of the methods that form the core of urban informatics from various kinds of urban remote sensing to new approaches to machine learning and statistical modelling. It provides a detailed technical introduction to the wide array of tools information

scientists need to develop the key urban analytics that are fundamental to learning about the smart city, and it outlines ways in which these tools can be used to inform design and policy so that cities can become more efficient with a greater concern for environment and equity.

Modelling Driver Behaviour in Automotive Environments

Carlo Cacciabue 2010-04-28 This book presents a general overview of the various factors that contribute to modelling human behaviour in automotive environments. This long-awaited volume, written by world experts in the field, presents state-of-the-art research and case studies. It will be invaluable reading for professional practitioners graduate students, researchers and alike.

Introduction to GPS Ahmed El-Rabbany

2002 If you're looking for an up-to-date, easy-to-understand treatment of the GPS (Global Positioning System), this one-of-a-kind resource offers you the knowledge you need for your work, without bogging you down with advanced mathematics. It addresses all aspects of the GPS, emphasizes GPS applications, examines the GPS signal structure, and covers the key types of measurement being utilized in the field today.

Proceedings of the 1st International Conference on Smart Innovation, Ergonomics and Applied Human Factors (SEAHF) César Benavente-Peces

2019-06-20 This book addresses a range of real-world issues including industrial activity, energy management, education, business and health. Today, technology is a part of virtually every human activity,

and is used to support, monitor and manage equipment, facilities, commodities, industry, business, and individuals' health, among others. As technology evolves, new applications, methods and techniques arise, while at the same time citizens' expectations from technology continue to grow. In order to meet the nearly insatiable demand for new applications, better performance and higher reliability, trustworthiness, security, and power consumption efficiency, engineers must deliver smart innovations, i.e., must develop the best techniques, technologies and services in a way that respects human beings and the environment. With that goal in mind, the key topics addressed in this book are: smart technologies and artificial intelligence, green energy systems,

aerospace engineering/robotics and IT, information security and mobile engineering, IT in bio-medical engineering and smart agronomy, smart marketing, management and tourism policy, technology and education, and hydrogen and fuel-cell energy technologies.

Proceedings of the International Conference on Signal, Networks, Computing, and Systems Daya K.

Lobiyal 2016-10-13 The book is a collection of high-quality peer-reviewed research papers presented in the first International Conference on Signal, Networks, Computing, and Systems (ICSNCS 2016) held at Jawaharlal Nehru University, New Delhi, India during February 25–27, 2016. The book is organized in to two volumes and primarily focuses on theory and applications in the broad

areas of communication technology, computer science and information security. The book aims to bring together the latest scientific research works of academic scientists, professors, research scholars and students in the areas of signal, networks, computing and systems detailing the practical challenges encountered and the solutions adopted.

Energy Harvesting for Autonomous Systems Stephen Beeby 2014-05-14 This unique resource provides a detailed understanding of the options for harvesting energy from localized, renewable sources to supply power to autonomous wireless systems. You are introduced to a variety of types of autonomous system and wireless networks and discover the capabilities of existing battery-

based solutions, RF solutions, and fuel cells. The book focuses on the most promising harvesting techniques, including solar, kinetic, and thermal energy. You also learn the implications of the energy harvesting techniques on the design of the power management electronics in a system. This in-depth reference discusses each energy harvesting approach in detail, comparing and contrasting its potential in the field.

Geospatial Technologies for Crops and Soils Tarik Mitran 2020-10-24 The sustainable development of the agriculture sector is the only option to meet the demands of increased and economically viable production in a changing climate. This means there is a need to introduce the latest technologies to enhance production, and also help policymakers make

decisions for the future. Geospatial technologies & tools, such as remote sensing, geographical information systems (GIS), global positioning systems (GPS), and mobile & web applications, provide unique capabilities to analyze multi-scale, multi-temporal datasets, and support decision-making in sustainable agriculture development and natural resources management. Further, the availability of reliable and timely geospatial information on natural resources and environmental conditions is essential for sustainable agricultural development and food security. Since remote sensing solutions are fast, non-destructive and have large spatial coverage, they can play a significant role in the identification, inventory, and mapping of land

resources. Over the past four decades, remote sensing has proved to be a cost-effective and powerful tool to assess crop and soil properties in varying spatial and temporal scales using both visual and digital techniques. Satellite remote sensing coupled with GIS & mobile-app based positional information has emerged as an efficient tool for optimizing input resources, and minimizing cost of production and risk of biotic/abiotic factors nature to promote sustainable agriculture. This book comprehensively documents the applications of space-based technologies for crop and soil assessments for the sustainable development of agriculture.

Design and Analysis of Large Lithium-Ion Battery Systems Shriram

Santhanagopalan 2014-12-01 This new

resource provides you with an introduction to battery design and test considerations for large-scale automotive, aerospace, and grid applications. It details the logistics of designing a professional, large, Lithium-ion battery pack, primarily for the automotive industry, but also for non-automotive applications. Topics such as thermal management for such high-energy and high-power units are covered extensively, including detailed design examples. Every aspect of battery design and analysis is presented from a hands-on perspective. The authors work extensively with engineers in the field and this book is a direct response to frequently-received queries. With the authors' unique expertise in areas such as battery

thermal evaluation and design, physics-based modeling, and life and reliability assessment and prediction, this book is sure to provide you with essential, practical information on understanding, designing, and building large format Lithium-ion battery management systems.

The Future Internet John Domingue
2011-04-08 Irrespective of whether we use economic or societal metrics, the Internet is one of the most important technical infrastructures in existence today. It will be a catalyst for much of our innovation and prosperity in the future. A competitive Europe will require Internet connectivity and services beyond the capabilities offered by current technologies. Future Internet research is therefore a must. This

book is published in full compliance with the Open Access publishing initiative; it is based on the research carried out within the Future Internet Assembly (FIA). It contains a sample of representative results from the recent FIA meetings spanning a broad range of topics, all being of crucial importance for the future Internet. The book includes 32 contributions and has been structured into the following sections, each of which is preceded by a short introduction: Foundations: architectural issues; socio-economic issues; security and trust; and experiments and experimental design. Future Internet Areas: networks, services, and content; and applications. Spatial Analysis in Field Primatology
Francine L. Dolins 2021-02-18 A

primatologist's guide to using geographic information systems (GIS); from mapping and field accuracy, to tracking travel routes and the impact of logging.

Consultants & Consulting

Organizations Directory Cengage Gale
2009-05-08

Advanced Maintenance Modelling for Asset Management Adolfo Crespo Márquez 2017-07-12 This book promotes and describes the application of objective and effective decision making in asset management based on mathematical models and practical techniques that can be easily implemented in organizations. This comprehensive and timely publication will be an essential reference source, building on available literature in the field of asset management while laying the

groundwork for further research breakthroughs in this field. The text provides the resources necessary for managers, technology developers, scientists and engineers to adopt and implement better decision making based on models and techniques that contribute to recognizing risks and uncertainties and, in general terms, to the important role of asset management to increase competitiveness in organizations. *Proceedings of the International Conference on Soft Computing Systems* L. Padma Suresh 2015-12-28 The book is a collection of high-quality peer-reviewed research papers presented in International Conference on Soft Computing Systems (ICSCS 2015) held at Noorul Islam Centre for Higher Education, Chennai, India. These research papers provide the latest

developments in the emerging areas of Soft Computing in Engineering and Technology. The book is organized in two volumes and discusses a wide variety of industrial, engineering and scientific applications of the emerging techniques. It presents invited papers from the inventors/originators of new applications and advanced technologies.

A review of multi-criteria decision-making applications to solve energy management problems: Two decades from 1995 to 2015 Abbas Mardania Energy management problems associated with rapid institutional, political, technical, ecological, social and economic development have been of critical concern to both national and local governments worldwide for many decades; thus, addressing such issues

is a global priority.

Modelling and Simulation of Electrical Energy Systems Through a Complex Systems Approach Using Agent-Based Models Enrique Alberto Kremers 2013

Telematics and Computing Miguel Felix Mata-Rivera 2019-10-24 This book constitutes the thoroughly refereed proceedings of the 8th International Congress on Telematics and Computing, WITCOM 2019, held in Merida, Mexico, in November 2019. The 31 full papers presented in this volume were carefully reviewed and selected from 78 submissions. The papers are organized in topical sections: □GIS & climate change; telematics & electronics; artificial intelligence & machine learning; software engineering & education; internet of things; and informatics security.

Advances in Mobile Mapping Technology

C. Vincent Tao 2007-02-08 The growing market penetration of Internet mapping, satellite imaging and personal navigation has opened up great research and business opportunities to geospatial communities. Multi-platform and multi-sensor integrated mapping technology has clearly established a trend towards fast geospatial data acquisition. Sensors can be mounted on various pla

Techniques and Applications of Digital Watermarking and Content Protection Michael Arnold 2003 This informative, new resource presents the first comprehensive treatment of

silicon-germanium heterojunction bipolar transistors (SiGe HBTs). It offers you a complete, from-the-ground-up understanding of SiGe HBT devices and technology, from a very broad perspective. The book covers motivation, history, materials, fabrication, device physics, operational principles, and circuit-level properties associated with this new cutting-edge semiconductor device technology. Including over 400 equations and more than 300 illustrations, this hands-on reference shows you in clear and concise language how to design, simulate, fabricate, and measure a SiGe HBT.