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GPR Remote Sensing in Archaeology

Dynamic Wireless Sensor Networks

A real-world guide to practical applications of groundpenetrating radar (GPR) The nondestructive nature of ground penetrating radar makes it an important and popular method of subsurface imaging, but it is a highly specialized field, requiring a deep understanding of the underlying science for successful application. Introduction to Ground Penetrating Radar: Inverse Scattering and Data Processing provides experienced professionals with the background they need to ensure precise data collection and analysis. Written to build upon the information presented in more general introductory volumes, the book discusses the fundamental mathematical, physical, and engineering principles upon which GPR is built. Real-world examples and field data provide readers an accurate view of day-to-day GPR use. Topics include: 2D scattering for dielectric and magnetic targets 3D scattering equations and migration algorithms Host medium characterization and diffraction tomography Time and frequency steps in GPR data sampling The Born approximation and the singular valuedecomposition The six appendices contain the mathematical proofs of all examples

discussed throughout the book. Introduction to GroundPenetrating Radar: Inverse Scattering and Data Processing is a comprehensive resource that will prove invaluable in the field.

Convex Optimization

This Field Guide covers the various components and types of active electro-optical sensors—referred to as lidars in the text—from simple 2D direct-detection lidars to multiple subaperture synthetic aperture lidars. Other topics covered include receivers, apertures, atmospheric effects, and appropriate processing of different lidars. Lasers and modulation are presented in terms of their use in lidars. The lidar range equation in its many variations is discussed along with receiver noise issues that determine how much signal must be received to detect an object. This book is a handy reference to quickly look up any aspect of active electro-optical sensors. It will be useful to students, lidar scientists, or engineers needing an occasional reminder of the correct approaches or equations in certain applications, and systems engineers interested in gaining a perspective on this rapidly growing technology.

Air Commando One

The recent shift in focus from defense and government work to commercial wireless efforts has caused the job of the typical microwave engineer to change dramatically. The modern microwave and RF engineer is expected to know customer expectations,

market trends, manufacturing technologies, and factory models to a degree that is unprecedented in the

Heritage Sites of Astronomy and Archaeoastronomy in the Context of the UNESCO World Heritage Convention

Thomas Register of American Manufacturers

In today's world, the range of technologies with the potential to threaten the security of U.S. military forces is extremely broad. These include developments in explosive materials, sensors, control systems, robotics, satellite systems, and computing power, to name just a few. Such technologies have not only enhanced the capabilities of U.S. military forces, but also offer enhanced offensive capabilities to potential adversaries - either directly through the development of more sophisticated weapons, or more indirectly through opportunities for interrupting the function of defensive U.S. military systems. Passive and active electro-optical (EO) sensing technologies are prime examples. Laser Radar considers the potential of active EO technologies to create surprise; i.e., systems that use a source of visible or infrared light to interrogate a target in combination with sensitive detectors and processors to analyze the returned light. The addition of an interrogating light source to the system adds rich new phenomenologies that enable new capabilities to be explored. This

report evaluates the fundamental, physical limits to active EO sensor technologies with potential military utility; identifies key technologies that may help overcome the impediments within a 5-10 year timeframe; considers the pros and cons of implementing each existing or emerging technology; and evaluates the potential uses of active EO sensing technologies, including 3D mapping and multi-discriminate laser radar technologies.

Radar Signal Processing for Autonomous Driving

Remote Sensing of the Terrestrial Water Cycle

This book constitutes the refereed proceedings of the Second International Conference on Advances in Communication, Network, and Computing, CNC 2011, held in Bangalore, India, in March 2011. The 41 revised full papers, presented together with 50 short papers and 39 poster papers, were carefully reviewed and selected for inclusion in the book. The papers feature current research in the field of Information Technology, Networks, Computational Engineering, Computer and Telecommunication Technology, ranging from theoretical and methodological issues to advanced applications.

Secure IT Systems

Air-dropping agents deep behind enemy lines in

clandestine night missions during the Korean War, commanding secret flights into Tibet in 1960 to support the anticommunist guerilla uprising, participating in plans for the 1962 Bay of Pigs invasion—even before the escalation of the Vietnam War, Brigadier General Harry C. “Heinie” Aderholt worked at the heart of both the U.S. Air Force and CIA special operations worldwide. In 1964 he became commander of the famed First Air Commando Wing, fighting to build up special operations capabilities among the American and South Vietnamese airmen. In 1966 and 1967 he and his men set the record for interdicting the flow of enemy trucks over the Ho Chi Minh Trail in Laos and North Vietnam. Drawing on official records, personal papers, and interviews with Aderholt and many who worked with him, Air Force historian Warren A. Trest details the life and career of this charismatic, unconventional military leader who has become a legend of the Cold War Air Force. He tells how Aderholt’s vigorous support of low-flying, propeller-driven aircraft and nonnuclear munitions pitted him against his superiors, who were steeped in doctrines of massive retaliation and “higher and faster” tactical air power. In the mid-1960s Aderholt’s clash with Seventh Air Force Commander General William W. Momyer reflected a schism that still exists between the traditional Air Force and its unconventional special operations wings. The book also integrates U.S. Air Force and CIA accounts of some of the most pivotal events of the past fifty years.

Computer Networks and Information

Technologies

The International Radar Symposium aims to provide a forum for both academic and industrial professionals in radar from all over the world and to bring together academicians, researchers, engineers, system analysts, graduate and undergraduate students with government and non government organizations to share and discuss both theoretical and practical knowledge We invite everybody to submit outstanding and valuable original research papers and participate in the technical exhibition during the conference

2018 19th International Radar Symposium (IRS).

In a 1950 conversation at Los Alamos, four world-class scientists generally agreed, given the size of the Universe, that advanced extraterrestrial civilizations must be present. But one of the four, Enrico Fermi, asked, "If these civilizations do exist, where is everybody?" Given the fact that there are perhaps 400 million stars in our Galaxy alone, and perhaps 400 million galaxies in the Universe, it stands to reason that somewhere out there, in the 14 billion-year-old cosmos, there is or once was a civilization at least as advanced as our own. Webb discusses in detail the 50 most cogent and intriguing solutions to Fermi's famous paradox.

Field Guide to Lidar

This textbook is one of the first to explain the fundamentals and applications of remote sensing at both undergraduate and graduate levels. Topics include definitions and a brief history of payloads and platforms, data acquisition and specifications, image processing techniques, data integration and spatial modeling, and a range of applications covering terrestrial, atmospheric, oceanographic and planetary disciplines. The policy and law issues of remote sensing and the future trends on the horizon are also covered. Remote sensing is an exciting, dynamic technology that is transforming the Earth sciences – terrestrial, atmospheric, and marine – as well as the practices of agriculture, disaster response, engineering, natural resources, providing evidence in legal cases and documented humanitarian crises, and many other fields. Increasingly, understanding of these techniques will be central to a number of disciplines, particularly as the technology advances.

Remote Sensing in Archaeology

This book strives to identify and introduce the durable intellectual ideas of embedded systems as a technology and as a subject of study. The emphasis is on modeling, design, and analysis of cyber-physical systems, which integrate computing, networking, and physical processes.

The Limitless Sky

This book is on the effects of directed energy weapons. That is, how they propagate to and interact

with targets. Propagation and target interaction are the key elements in an analysis of a weapon's utility to accomplish a given mission. For example, the effectiveness of a nuclear missile is determined by the yield of its warhead and the accuracy of its guidance, and the effectiveness of a rifle is determined by the type of round fired, the range to the target, and the skill of the soldier who fires it. Directed energy weapons are no different. But while there are books and manuals that deal with the issues affecting the utility of nuclear missiles and rifles, there is no comparable source of information for directed energy weapons. I have tried to fill that void with this book.

The RF and Microwave Handbook

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.

2019 20th International Radar Symposium (IRS)

Apoptosis is an essential biochemical process in cell turnover, development, and chemical-induced cell death. Current knowledge and ongoing research of apoptosis highlight our understanding in designing the therapeutic approaches for several diseases. This book covers four main sections: "Apoptosis and Necrosis," "Apoptosis Inducers," "Proteasome and Signaling Pathways in Apoptosis," and "Radiation-Based Apoptosis." The first section implicitly describes the differences between apoptosis and necrosis processes. The following section elaborates the small molecule-induced apoptosis. Then, the third section deals with proteasome and signaling pathways and finally, resistance to chemotherapy and electromagnetic radiation is covered in the last section. Overall, the book deals with pathways for manipulating apoptosis and provides a unique perspective to the scientists.

Microwave Journal

Remote Sensing provides information on how remote sensing relates to the natural resources inventory, management, and monitoring, as well as environmental concerns. It explains the role of this new technology in current global challenges. "Remote Sensing" will discuss remotely sensed data application payloads and platforms, along with the methodologies involving image processing techniques as applied to remotely sensed data. This title provides information on image classification techniques and image registration, data integration, and data fusion techniques. How this technology applies to natural resources and environmental concerns will also be discussed.

Advances in Microwave and Radio Frequency Processing

The subject of this book is theory, principles and methods used in radar algorithm development with a special focus on automotive radar signal processing. In the automotive industry, autonomous driving is currently a hot topic that leads to numerous applications for both safety and driving comfort. It is estimated that full autonomous driving will be realized in the next twenty to thirty years and one of the enabling technologies is radar sensing. This book presents both detection and tracking topics specifically for automotive radar processing. It provides illustrations, figures and tables for the reader to quickly grasp the concepts and start working on practical solutions. The complete and comprehensive coverage of the topic provides both professionals and

newcomers with all the essential methods and tools required to successfully implement and evaluate automotive radar processing algorithms.

Introduction to Embedded Systems - A Cyber Physical Systems Approach - Second Edition

Thomas Register of American Manufacturers and Thomas Register Catalog File

This volume outlines the fundamentals and applications of light scattering, absorption and polarization processes involving ice crystals.

Principles of Applied Remote Sensing

GPR Remote Sensing in Archaeology provides a complete description of the processes needed to take raw GPR data all the way to the construction of subsurface images. The book provides an introduction to the “theory” of GPR by using a simulator that shows how radar profiles across simple model structures look and provides many examples so that the complexity of radar signatures can be understood. It continues with a review of the necessary radargram signal processes needed along with examples. The most comprehensive methodology to construct subsurface images from either coarsely spaced data using interpolation or from dense data from multi-

channel equipment and 3D volume generation is presented, advanced imaging solutions such as overlay analysis are introduced, and numerous worldwide site case histories are shown. The authors present their studies in a way that most technical and non-technical users of the equipment will find essentials for implementing in their own subsurface investigations.

Effects of Directed Energy Weapons

With illustrations and photographs in full color.

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

In this title, the authors leap into a novel paradigm of scalability and cost-effectiveness, on the basis of resource reuse. In a world with much abundance of wirelessly accessible devices, WSN deployments should capitalize on the resources already available in the region of deployment, and only augment it with the components required to meet new application requirements. However, if the required resources already exist in that region, WSN deployment converges to an assignment and scheduling scheme to accommodate for the new application given the existing resources. Such resources are polled from many fields, including multiple WSNs already in the field, static networks (WiFi, WiMAX, cellular, etc) in addition to municipal, industrial and mobile

resources. The architecture, framework and pricing policy, as well as approaches for backward compatibility with existing deployments, are presented in this book. We elaborate on the formalization of the problem, and contrast with existing work on coverage. This paradigm adopts optimal assignments in WSNs and exploits dynamic re-programming for boosting post-deployment and backward compatible protocols.

High-level Information Fusion Management and Systems Design

Antenna Theory and Microstrip Antennas offers a uniquely balanced analysis of antenna fundamentals and microstrip antennas. Concise and readable, it provides theoretical background, application materials, and details of recent progress. Exploring several effective design approaches, this book covers a wide scope, making it an ideal hands-on resource for professionals seeking a refresher in the fundamentals. It also provides the basic grounding in antenna essentials that is required for those new to the field. The book's primary focus is on introducing practical techniques that will enable users to make optimal use of powerful commercial software packages and computational electromagnetics used in full wave analysis and antenna design. Going beyond particular numerical computations to teach broader concepts, the author systematically presents the all-important spectral domain approach to analyzing microstrip structures including antennas. In addition to a discussion of near-field measurement

and the high-frequency method, this book also covers: Elementary linear sources, including Huygen's planar element, and analysis and synthesis of the discrete and continuous arrays formed by these elementary sources The digital beam-forming antenna and smart antenna Cavity mode theory and related issues, including the design of irregularly shaped patches and the analysis of mutual coupling Based on much of the author's own internationally published research, and honed by his years of teaching experience, this text is designed to bring students, engineers, and technicians up to speed as efficiently as possible. This text purposefully emphasizes principles and includes carefully selected sample problems to ease the process of understanding the often intimidating area of antenna technology. Paying close attention to this text, you will be able to confidently emulate the author's own systematic approach to make the most of commercial software and find the creative solutions that every job seems to require.

Sensing the Past

Technical Abstract Bulletin

This basic source for identification of U.S. manufacturers is arranged by product in a large multi-volume set. Includes: Products & services, Company profiles and Catalog file.

F&S Index United States

Vols. for 1970-71 includes manufacturers' catalogs.

Current Understanding of Apoptosis

International Aerospace Abstracts

This book constitutes the refereed proceedings of the 24th Nordic Conference on Secure IT Systems, NordSec 2019, held in Aalborg, Denmark, in November 2019. The 17 full papers presented in this volume were carefully reviewed and selected from 32 submissions. They are organized in topical sections named: privacy; network security; platform security and malware; and system and software security.

Air Pictorial

Introduction to Ground Penetrating Radar

Advanced Research on Computer Education, Simulation and Modeling

Prometheus brought fire to mankind Arthur R. von Hippel "Dielectrics and Waves", 1954 Our contribution? There are only few areas of research and development of a comparable scientific and technological extension as microwave and high frequency processing. "Processing" means not only

application of radiation of 300 MHz to 300 GHz frequency to synthesis, heating or ionisation of matter but also generation, transmission and detection of microwave and radio frequency radiation. Microwave and high frequency sources positioned in the orbit are the foundation of modern satellite telecommunication systems, gyrotron tubes being presently developed in different countries all over the world will most probably be the major devices to open up a new era of energy supply to mankind by means of fusion plasma. Although initiated by military purposes during the Second World War (RADAR, Radio Detection and Ranging), microwave and high frequency utilisation has spread over almost every important aspect of normal day life since then, from individual mobile phones and kitchen microwave ovens to industrial food processing, production of composites as sustainable building materials, green chemistry, medical applications and finally infrastructure installations like GPS and Galileo, to name only a few examples. These different areas of microwave and high frequency radiation application can not be unified within one group of scientists and technologists. There are several distinguished communities active e.g., in the area of telecommunication systems, strong microwaves for fusion plasma or plasma based materials processing.

Harbour & Shipping

Remote Sensing

Archaeology has been transformed by technology that allows one to 'see' below the surface of the earth. This work illustrates the uses of advanced technology in archaeological investigation. It deals with hand-held instruments that probe the subsurface of the earth to unveil layering and associated sites; underwater exploration and photography of submerged sites and artifacts; and the utilization of imaging from aircraft and spacecraft to reveal the regional setting of archaeological sites and to assist in cultural resource management.

Soviet Intercept

This book provides a complete overview of novel and state of art sensing technologies and geotechnologies relevant to support management and conservation of CH sites, monuments and works of art. The book is organized in an introduction stating the motivations and presenting the overall content of the volume and four parts. The first part focuses on remote sensing and geophysics for the study of human past and cultural heritage at site scale and as element of the surrounding territory. The second part presents an overview of non invasive technologies for investigating monuments and works of art. The third part presents the new opportunities of ICT for an improved and safe cultural heritage fruition, from the virtual and augmented reality of historical context to artifact tracking. Finally, the fourth part presents a significant worldwide set of success cases of the exploitation of the integration of geotechnologies in archeology and architectural heritage management.

This book is of interest to researchers, experts of heritage science, archaeologists, students, conservators and other professionals of cultural heritage.

Laser Radar

This Thematic Study is a joint venture between ICOMOS, the advisory body to UNESCO on cultural sites, and the International Astronomical Union. It presents an overall vision on astronomical heritage, attempts to identify what constitutes "outstanding universal significance to humankind" in relation to astronomy, and identifies broad issues that could arise in the assessment of cultural properties relating to astronomy. This is the first Thematic Study in any field of science heritage. It is elaborated using examples of properties from around the world, including some already on the World Heritage List or national Tentative Lists. The subject matter ranges from early prehistory to modern astrophysics and space heritage, and also prominently includes dark sky issues and modern observatory sites. An e-version of the Thematic Study was published in June 2010 in time to be presented to the 2010 meeting of UNESCO's World Heritage Committee, where it was duly approved. It has been circulated officially by the WHC to all of UNESCO's National Commissions. This full-colour paperback edition with some updates, and reformatted to new ICOMOS standards, was published in 2011 and is now offered for public sale.

A Candle in the Dark

Convex optimization problems arise frequently in many different fields. This book provides a comprehensive introduction to the subject, and shows in detail how such problems can be solved numerically with great efficiency. The book begins with the basic elements of convex sets and functions, and then describes various classes of convex optimization problems. Duality and approximation techniques are then covered, as are statistical estimation techniques. Various geometrical problems are then presented, and there is detailed discussion of unconstrained and constrained minimization problems, and interior-point methods. The focus of the book is on recognizing convex optimization problems and then finding the most appropriate technique for solving them. It contains many worked examples and homework exercises and will appeal to students, researchers and practitioners in fields such as engineering, computer science, mathematics, statistics, finance and economics.

Antenna Theory and Microstrip Antennas

High-level information fusion is the ability of a fusion system to capture awareness and complex relations, reason over past and future events, utilize direct sensing exploitations and tacit reports, and discern the usefulness and intention of results to meet system-level goals. This authoritative book serves a practical reference for developers, designers, and users of data fusion services that must relate the most recent theory to real-world applications. This unique volume provides alternative methods to

represent and model various situations and describes design component implementations of fusion systems. Designers find expert guidance in applying current theories, selecting algorithms and software components, and measuring expected performance of high-level fusion systems.

Light Scattering by Ice Crystals

Remote Sensing of the Terrestrial Water Cycle is an outcome of the AGU Chapman Conference held in February 2012. This is a comprehensive volume that examines the use of available remote sensing satellite data as well as data from future missions that can be used to expand our knowledge in quantifying the spatial and temporal variations in the terrestrial water cycle. Volume highlights include: - An in-depth discussion of the global water cycle - Approaches to various problems in climate, weather, hydrology, and agriculture - Applications of satellite remote sensing in measuring precipitation, surface water, snow, soil moisture, groundwater, modeling, and data assimilation - A description of the use of satellite data for accurately estimating and monitoring the components of the hydrological cycle - Discussion of the measurement of multiple geophysical variables and properties over different landscapes on a temporal and a regional scale Remote Sensing of the Terrestrial Water Cycle is a valuable resource for students and research professionals in the hydrology, ecology, atmospheric sciences, geography, and geological sciences communities.

If the Universe Is Teeming with Aliens WHERE IS EVERYBODY?

This two-volume set (CCIS 175 and CCIS 176) constitutes the refereed proceedings of the International Conference on Computer Education, Simulation and Modeling, CSEM 2011, held in Wuhan, China, in June 2011. The 148 revised full papers presented in both volumes were carefully reviewed and selected from a large number of submissions. The papers cover issues such as multimedia and its application, robotization and automation, mechatronics, computer education, modern education research, control systems, data mining, knowledge management, image processing, communication software, database technology, artificial intelligence, computational intelligence, simulation and modeling, agent based simulation, biomedical visualization, device simulation & modeling, object-oriented simulation, Web and security visualization, vision and visualization, coupling dynamic modeling theory, discretization method , and modeling method research.

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