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KEY=GUIDE - MARQUEZ STEPHANY

WebGL Programming Guide

Interactive 3D Graphics Programming with WebGL

Addison-Wesley Using WebGL®, you can create sophisticated interactive 3D graphics inside web browsers, without plug-ins. WebGL makes it possible to build a new generation of 3D web games, user interfaces, and information visualization solutions that will run on any standard web browser, and on PCs, smartphones, tablets, game consoles, or other devices. WebGL Programming Guide will help you get started quickly with interactive WebGL 3D programming, even if you have no prior knowledge of HTML5, JavaScript, 3D graphics, mathematics, or OpenGL. You'll learn step-by-step, through realistic examples, building your skills as you move from simple to complex solutions for building visually appealing web pages and 3D applications with WebGL. Media, 3D graphics, and WebGL pioneers Dr. Kouichi Matsuda and Dr. Rodger Lea offer easy-to-understand tutorials on key aspects of WebGL, plus 100 downloadable sample programs, each demonstrating a specific WebGL topic. You'll move from basic techniques such as rendering, animating, and texturing triangles, all the way to advanced techniques such as fogging, shadowing, shader switching, and displaying 3D models generated by Blender or other authoring tools. This book won't just teach you WebGL best practices, it will give you a library of code to jumpstart your own projects. Coverage includes: • WebGL's origin, core concepts, features, advantages, and integration with other web standards • How and basic WebGL functions work together to deliver 3D graphics • Shader development with OpenGL ES Shading Language (GLSL ES) • 3D scene drawing: representing user views, controlling space volume, clipping, object creation, and perspective • Achieving greater realism through lighting and hierarchical objects • Advanced techniques: object manipulation, heads-up displays, alpha blending, shader switching, and more • Valuable reference appendixes covering key issues ranging from coordinate systems to matrices and shader loading to web browser settings This is the newest text in the OpenGL Technical Library, Addison-Wesley's definitive collection of programming guides and reference manuals for OpenGL and its related technologies. The Library enables programmers to gain a practical understanding of OpenGL and the other Khronos application-programming libraries including OpenGL ES and OpenCL. All of the technologies in the OpenGL Technical Library evolve under the auspices of the Khronos Group, the industry consortium guiding the evolution of modern, open-standards media APIs.

Guide to Graphics Software Tools

Springer Science & Business Media Today, many scientists in different disciplines realize the power of graphics, but are also bewildered by the numerous graphics tools. More often than not, they choose the improper software tools and end up with unsatisfactory results. This book introduces and categorizes the most commonly used graphics tools and their applications. The purpose is not to provide an exhaustive list of tools and their explicit functions, but rather to provide scientific researchers with different means and application areas in computer graphics, so as to help them efficiently use visualization, modeling, simulation, and virtual reality to complement their research needs. This guide includes coverage of the most widely used commercial software, freeware and open-source software.

National Guide to Funding in Higher Education

Eddy Covariance

A Practical Guide to Measurement and Data Analysis

Springer Science & Business Media This highly practical handbook is an exhaustive treatment of eddy covariance measurement that will be of keen interest to scientists who are not necessarily specialists in micrometeorology. The chapters cover measuring fluxes using eddy covariance technique, from the tower installation and system dimensioning to data collection, correction and analysis. With a state-of-the-art perspective, the authors examine the latest techniques and address the most up-to-date methods for data processing and quality control. The chapters provide answers to data treatment problems including data filtering, footprint analysis, data gap filling, uncertainty evaluation, and flux separation, among others. The authors cover the application of measurement techniques in different ecosystems such as forest, crops, grassland, wetland, lakes and rivers, and urban areas, highlighting peculiarities, specific practices and methods to be considered. The book also covers what to do when you have all your data, summarizing the objectives of a database as well as using case studies of the CarboEurope and FLUXNET databases to demonstrate the way they should be maintained and managed. Policies for data use, exchange and publication are also discussed and proposed. This one compendium is a valuable source of information on eddy covariance measurement that allows readers to make rational and relevant choices in positioning, dimensioning, installing and maintaining an eddy covariance site; collecting, treating, correcting and analyzing eddy covariance data; and scaling up eddy flux measurements to annual scale and evaluating their uncertainty.

A Handbook of Sustainable Building Design and Engineering

"An Integrated Approach to Energy, Health and Operational Performance"

Routledge The combined challenges of health, comfort, climate change and energy security cross the boundaries of traditional building disciplines. This authoritative collection, focusing mostly on energy and ventilation, provides the current and next generation of building engineering professionals with what they need to work closely with many disciplines to meet these challenges. A Handbook of Sustainable Building Engineering covers: how to design, engineer and monitor a building in a manner that minimises the emissions of greenhouse gases; how to adapt the environment, fabric and services of existing and new buildings to climate change; how to improve the environment in and around buildings to provide better health, comfort, security and productivity; and provides crucial expertise on monitoring the performance of buildings once they are occupied. The authors explain the principles behind built environment engineering, and offer practical guidance through international case studies.

Remote Sensing of Atmospheric Conditions for Wind Energy Applications

MDPI This Special Issue "Atmospheric Conditions for Wind Energy Applications" hosts papers on aspects of remote sensing for atmospheric conditions for wind energy applications. Wind lidar technology is presented from a theoretical view on the coherent focused Doppler lidar principles. Furthermore, wind lidar for applied use for wind turbine control, wind farm wake, and gust characterizations is presented, as well as methods to reduce uncertainty when using lidar in complex terrain. Wind lidar observations are used to validate numerical model results. Wind Doppler lidar mounted on aircraft used for observing winds in hurricane conditions and Doppler radar on the ground used for very short-term wind forecasting are presented. For the offshore environment, floating lidar data processing is presented as well as an experiment with wind-profiling lidar on a ferry for model validation. Assessments of wind resources in the coastal zone using wind-profiling lidar and global wind maps using satellite data are presented.

Air Cargo Guide

OAG, Official Airline Guide

Handbook of Analysis and Its Foundations

Academic Press Handbook of Analysis and Its Foundations is a self-contained and unified handbook on mathematical analysis and its foundations. Intended as a self-study guide for advanced undergraduates and beginning graduate students in mathematics and a reference for more advanced mathematicians, this highly readable book provides broader coverage than competing texts in the area. *Handbook of Analysis and Its Foundations* provides an introduction to a wide range of topics, including: algebra; topology; normed spaces; integration theory; topological vector spaces; and differential equations. The author effectively demonstrates the relationships between these topics and includes a few chapters on set theory and logic to explain the lack of examples for classical pathological objects whose existence proofs are not constructive. More complete than any other book on the subject, students will find this to be an invaluable handbook. Covers some hard-to-find results including: Bessagas and Meyers converses of the Contraction Fixed Point Theorem Redefinition of subnets by Aarnes and Andenaes Ghermans characterization of topological convergences Neumanns nonlinear Closed Graph Theorem van Maarens geometry-free version of Sperners Lemma Includes a few advanced topics in functional analysis Features all areas of the foundations of analysis except geometry Combines material usually found in many different sources, making this unified treatment more convenient for the user Has its own webpage: <http://math.vanderbilt.edu/>

Computerworld Buyer's Guide

Communications

European Guide to Power System Testing

The ERIGrid Holistic Approach for Evaluating Complex Smart Grid Configurations

Springer Nature This book is an open access book. This book provides an overview of the ERIGrid validation methodology for validating CPES, a holistic power system testing method. It introduces readers to corresponding simulation and laboratory-based tools, including co-simulation, real-time simulation, and hardware-in-the-loop. Selected test cases and validation examples are provided, in order to support the theory discussed. The book begins with an introduction to current power system testing methods and an overview of the ERIGrid system-level validation approach. It then moves on to discuss various validation methods, concepts and tools, including simulation and laboratory-based assessment methods. The book presents test cases and validation examples of the proposed methodologies and summarises the lessons learned from the holistic validation approach. In the final section of the book, the educational aspects of these methods, the outlook for the future, and overall conclusions are discussed. Given its scope, the book will be of interest to researchers, engineers, and laboratory personnel in the fields of power systems and smart grids, as well as undergraduate and graduate students studying related engineering topics.

Meteorology for Wind Energy

An Introduction

John Wiley & Sons Most practitioners within wind energy have only a very basic knowledge about meteorology, leading to a lack of understanding of one of the most fundamental subjects in wind energy. This book will therefore provide an easy-to-understand introduction to the subject of meteorology, as seen from the viewpoint of wind energy. Catering for a range of academic backgrounds, the book is mathematically rigorous with accessible explanations for non-mathematically oriented readers. Through exercises in the text and at the end of each chapter the reader will be challenged to think, seek further information and practice the knowledge obtained from reading the book. This practical yet comprehensive reference will enable readers to fully understand the theoretical background of

meteorology with wind energy in mind and will include topics such as: measurements; wind profiles; wakes; modelling; turbulence and the fundamentals of atmospheric flow on all scales including the local scale. Key features: • Provides practitioners of wind energy with a solid theoretical grounding in relevant aspects of meteorology enabling them to exercise useful judgment in matters related to resource estimation, wind farm development, planning, turbine design and electrical grids. • Supports a growing area of professional development with the increasing importance of wind energy estimation in all aspects of electrical energy production from wind. • Accompanying website includes data sets for exercises in data analysis, photographs, animations & worked examples, helping to further bridge the gap between theory and practice. *Meteorology for Wind Energy: An Introduction* is aimed at engineers, developers and project managers in the wind power and electrical utility sectors without the essential theoretical background required to understand the topic. It will also have significant appeal to senior undergraduate and postgraduate students of Wind Energy, Environmental Studies or Renewables Studies.

Solid State Technology ... Resource Guide

Canadian Poultry Review

Ionospheric Multi-Spacecraft Analysis Tools

Approaches for Deriving Ionospheric Parameters

Springer Nature This open access book provides a comprehensive toolbox of analysis techniques for ionospheric multi-satellite missions. The immediate need for this volume was motivated by the ongoing ESA Swarm satellite mission, but the tools that are described are general and can be used for any future ionospheric multi-satellite mission with comparable instrumentation. In addition to researching the immediate plasma environment and its coupling to other regions, such a mission aims to study the Earth's main magnetic field and its anomalies caused by core, mantle, or crustal sources. The parameters for carrying out this kind of work are examined in these chapters. Besides currents, electric fields, and plasma convection, these parameters include ionospheric conductance, Joule heating, neutral gas densities, and neutral winds.

Nature-Based Solutions to Climate Change Adaptation in Urban Areas

Linkages between Science, Policy and Practice

Springer This open access book brings together research findings and experiences from science, policy and practice to highlight and debate the importance of nature-based solutions to climate change adaptation in urban areas. Emphasis is given to the potential of nature-based approaches to create multiple-benefits for society. The expert contributions present recommendations for creating synergies between ongoing policy processes, scientific programmes and practical implementation of climate change and nature conservation measures in global urban areas. Except where otherwise noted, this book is licensed under a Creative Commons Attribution 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>

Freshwater Microplastics

Emerging Environmental Contaminants?

Springer This book is open access under a CC BY 4.0 license. This volume focuses on microscopic plastic debris, also referred to as microplastics, which have been detected in aquatic environments around the globe and have accordingly raised serious concerns. The book explores whether microplastics represent emerging contaminants in freshwater systems, an area that remains underrepresented to date. Given the complexity of the issue, the book covers the current state-of-research on microplastics in rivers and lakes, including analytical aspects, environmental concentrations and sources, modelling

approaches, interactions with biota, and ecological implications. To provide a broader perspective, the book also discusses lessons learned from nanomaterials and the implications of plastic debris for regulation, politics, economy, and society. In a research field that is rapidly evolving, it offers a solid overview for environmental chemists, engineers, and toxicologists, as well as water managers and policy-makers.

The Satellite Communication Applications Handbook

Artech House Since the publication of the best-selling first edition of *The Satellite Communication Applications Handbook*, the satellite communications industry has experienced explosive growth. Satellite radio, direct-to-home satellite television, satellite telephones, and satellite guidance for automobiles are now common and popular consumer products. Similarly, business, government, and defense organizations now rely on satellite communications for day-to-day operations. This second edition covers all the latest advances in satellite technology and applications including direct-to-home broadcasting, digital audio and video, and VSAT networks. Engineers get the latest technical insights into operations, architectures, and systems components.

Innovative Learning Environments in STEM Higher Education

Opportunities, Challenges, and Looking Forward

Springer Nature As explored in this open access book, higher education in STEM fields is influenced by many factors, including education research, government and school policies, financial considerations, technology limitations, and acceptance of innovations by faculty and students. In 2018, Drs. Ryoo and Winkelmann explored the opportunities, challenges, and future research initiatives of innovative learning environments (ILEs) in higher education STEM disciplines in their pioneering project: *eXploring the Future of Innovative Learning Environments (X-FILEs)*. Workshop participants evaluated four main ILE categories: personalized and adaptive learning, multimodal learning formats, cross/extended reality (XR), and artificial intelligence (AI) and machine learning (ML). This open access book gathers the perspectives expressed during the X-FILEs workshop and its follow-up activities. It is designed to help inform education policy makers, researchers, developers, and practitioners about the adoption and implementation of ILEs in higher education.

Guide to Antimicrobial Use in Animals

John Wiley & Sons The first book to offer practical guidelines on the prudent and rational use of antimicrobials in animals. Drawing on multidisciplinary expertise to offer independent scientific advice on a controversial area that is crucial to both human health and animal welfare. The earlier general chapters cover issues such as human health risks and the problems of resistance to antimicrobial drugs. The later specific chapters are dedicated to particular groups of animals. Has an emphasis on preserving the efficacy of antimicrobial drugs that are clinically important in human medicine. Covers both companion animals and food animals, including aquaculture. Suitable for veterinary practitioners working in small and large animal medicine, aquaculture and animal production, as well as veterinary students, academics and researchers. It will also be of interest to those more generally involved in veterinary public health and antimicrobial resistance.

High-Efficient Low-Cost Photovoltaics

Recent Developments

Springer Science & Business Media A bird's-eye view of the developmental trends and problems of recent photovoltaics is presented. The worldwide effort to develop high-efficiency low-cost PV modules, making use of most efficient solar cells and clever low-cost solar concentrators is described.

Clinical Handbook of Air Pollution-Related Diseases

Springer This book examines in detail the clinical implications of those diseases that either are primarily triggered by air pollution or represent direct consequences of air pollutants. The aim is to provide medical practitioners with practical solutions to issues in diagnosis and treatment while simultaneously furnishing other interested parties with crucial information on the field. The book introduces the concept that air pollution-related diseases constitute a new class of pathologies. A wide range of conditions mainly attributable to air pollution are discussed, covering different body systems and pollution impacts in subsets of the population. In addition to presenting state of the art overviews of clinical aspects, the book carefully examines the implications of current knowledge for social and public health strategies aimed at disease prevention and prophylaxis. The Clinical Handbook of Air Pollution-Related Diseases will greatly assist doctors and healthcare workers when dealing with the consequences of air pollution in their everyday practice and will provide researchers, industry, and policymakers with valuable facts and insights.

Introduction to Food Engineering

Gulf Professional Publishing Food engineering is a required class in food science programs, as outlined by the Institute for Food Technologists (IFT). The concepts and applications are also required for professionals in food processing and manufacturing to attain the highest standards of food safety and quality. The third edition of this successful textbook succinctly presents the engineering concepts and unit operations used in food processing, in a unique blend of principles with applications. The authors use their many years of teaching to present food engineering concepts in a logical progression that covers the standard course curriculum. Each chapter describes the application of a particular principle followed by the quantitative relationships that define the related processes, solved examples, and problems to test understanding. The subjects the authors have selected to illustrate engineering principles demonstrate the relationship of engineering to the chemistry, microbiology, nutrition and processing of foods. Topics incorporate both traditional and contemporary food processing operations.

Biomass Utilization

Springer Science & Business Media This proceedings volume represents the culmination of nearly three years of planning, organizing and carrying out of a NATO Advanced Study Institute on Biomass Utilization. The effort was initiated by Dr. Harry Sobel, then Editor of Biosources Digest, and a steering committee representing the many disciplines that this field brings together. . When the fiscal and logistical details of the original plan could not be worked out, the idea was temporarily suspended. In the spring of 1982, the Renewable Materials Institute of the State University of New York at the College of Environmental Science and Forestry in Syracuse, New York revived the plan. A number of modifications had to be made, including the venue which was changed from the U.S.A. to Portugal. Additional funding beyond the basic support provided by the Scientific Affairs Division of NATO had to be obtained. Unfortunately there were supplementary grants from the Foundation for Microbiology and the Anne S. Richardson Fund to assist student participants. The New York State College of Forestry Foundation, Inc. provided major support through the Renewable Materials Institute. The ASI was held in Alcabideche, Portugal from September 26 to October 9, 1982. Eighty participants including fifteen principal lecturers were assembled at the Hotel Sintra Estoril for the program that was organized as a comprehensive course on biomass utilization. The main lectures were supplemented by relevant short papers offered by the participants.

Bioalcohol Production

Biochemical Conversion of Lignocellulosic Biomass

Elsevier Bioethanol is one of the main biofuels currently used as a petroleum-substitute in transport applications. However, conflicts over food supply and land use have made its production and utilisation a controversial topic. Second generation bioalcohol production technology, based on (bio)chemical conversion of non-food lignocellulose, offers potential advantages over existing, energy-intensive bioethanol production processes. Food vs. fuel pressures may be reduced by utilising a wider range of lignocellulosic biomass feedstocks, including energy crops, cellulosic residues, and, particularly, wastes. Bioalcohol production covers the process engineering, technology, modelling and integration of the entire production chain for second generation bioalcohol production from lignocellulosic biomass. Primarily reviewing bioethanol production, the book's coverage extends to the production of longer-chain bioalcohols which will be elemental to the future of the industry. Part one reviews the key features and processes involved in the pretreatment and fractionation of lignocellulosic biomass for bioalcohol production, including hydrothermal and thermochemical pretreatment, and fractionation to separate out valuable process feedstocks. Part two covers the hydrolysis (saccharification) processes applicable to pretreated feedstocks. This includes both acid and enzymatic approaches and also

importantly covers the development of particular enzymes to improve this conversion step. This coverage is extended in Part three, with chapters reviewing integrated hydrolysis and fermentation processes, and fermentation and co-fermentation challenges of lignocellulose-derived sugars, as well as separation and purification processes for bioalcohol extraction. Part four examines the analysis, monitoring and modelling approaches relating to process and quality control in the pretreatment, hydrolysis and fermentation steps of lignocellulose-to-bioalcohol production. Finally, Part five discusses the life-cycle assessment of lignocellulose-to-bioalcohol production, as well as the production of valuable chemicals and longer-chain alcohols from lignocellulosic biomass. With its distinguished international team of contributors, Bioalcohol production is a standard reference for fuel engineers, industrial chemists and biochemists, plant scientists and researchers in this area. Provides an overview of the life-cycle assessment of lignocelluloses-to-bioalcohol production Reviews the key features and processes involved in the pre-treatment and fractionation of lignocellulosic biomass for bioalcohol production Examines the analysis, monitoring and modelling approaches relating to process and quality control in pre-treatment, hydrolysis and fermentation

Handbook of Statistical Analysis and Data Mining Applications

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

The Use of Remote Sensing in Hydrology

MDPI This book is a printed edition of the Special Issue "The Use of Remote Sensing in Hydrology" that was published in *Water*

Many-Body Quantum Theory in Condensed Matter Physics

An Introduction

Oxford University Press The book is an introduction to quantum field theory applied to condensed matter physics. The topics cover modern applications in electron systems and electronic properties of mesoscopic systems and nanosystems. The textbook is developed for a graduate or advanced undergraduate course with exercises which aim at giving students the ability to confront real problems.

Modeling Physiology of Crop Development, Growth and Yield

CABI Model studies focus experimental investigations to improve our understanding and performance of systems. Concentrating on crop modelling, this book provides an introduction to the concepts of crop development, growth, and yield, with step-by-step outlines to each topic, suggested exercises and simple equations. A valuable text for students and researchers of crop development alike, this book is written in five parts that allow the reader to develop a solid foundation and coverage of production models including water- and nitrogen-limited systems.

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Hac nouissima editione praeter Allegationes marginales COMMENTARIIS X. aucta non ante hac editis. Omnibus vtriusque Iuris Professoribus, [et] Sacrae Theologiae studiosis, apprime vtilia, [et] necessaria. TOMVS QVARTVS. Quae in hoc Tomo continentur, quarta pagina indicat. CVM INDICIBVS, ET PRIVILEGIIS

Wind Energy Engineering

A Handbook for Onshore and Offshore Wind Turbines

Academic Press Wind Energy Engineering: A Handbook for Onshore and Offshore Wind Turbines is the most advanced, up-to-date and research-focused text on all aspects of wind energy engineering. Wind energy is pivotal in global electricity generation and for achieving future essential energy demands and targets. In this fast moving field this must-have edition starts with an in-depth look at the present state of wind integration and distribution worldwide, and continues with a high-level assessment of the advances in turbine technology and how the investment, planning, and economic infrastructure can support those innovations. Each chapter includes a research overview with a detailed analysis and new case studies looking at how recent research developments can be applied. Written by some of the most forward-thinking professionals in the field and giving a complete examination of one of the most promising and efficient sources of renewable energy, this book is an invaluable reference into this cross-disciplinary field for engineers. Contains analysis of the latest high-level research and explores real world application potential in relation to the developments Uses system international (SI) units and imperial units throughout to appeal to global engineers Offers new case studies from a world expert in the field Covers the latest research developments in this fast moving, vital subject

Essentials of Educational Measurement

Prentice Hall

A Handbook of Theories on Designing Alignment Between People and the Office Environment

Routledge Although workplace design and management are gaining more and more attention from modern organizations, workplace research is still very fragmented and spread across multiple disciplines in academia. There are several books on the market related to workplaces, facility management (FM), and corporate real estate management (CREM) disciplines, but few open up a theoretical and practical discussion across multiple theories from different fields of studies. Therefore, workplace researchers are not aware of all the angles from which workplace management and effects of workplace design on employees has been or could be studied. A lot of knowledge is lost between disciplines, and sadly, many insights do not reach workplace managers in practice. Therefore, this new book series is started by associate professor Rianne Appel-Meulenbroek (Eindhoven University of Technology, the Netherlands) and postdoc researcher Vitalija Danivska (Aalto University, Finland) as editors, published by Routledge. It is titled 'Transdisciplinary Workplace Research and Management' because it bundles important research insights from different disciplinary fields and shows its relevance for both academic workplace research and workplace management in practice. The books will address the complexity of the transdisciplinary angle necessary to solve ongoing workplace-related issues in practice, such as

knowledge worker productivity, office use, and more strategic workplace management. In addition, the editors work towards further collaboration and integration of the necessary disciplines for further development of the workplace field in research and in practice. This book series is relevant for workplace experts both in academia and industry. This first book in the series focuses on the employee as a user of the work environment. The 21 theories discussed and applied to workplace design in this book address people's ability to do their job and thrive in relation to the office workplace. Some focus more on explaining why people behave the way they do (the psychosocial environment), while others take the physical and/or digital workplace quality as a starting point to explain employee outcomes such as health, satisfaction, and performance. They all explain different aspects for achieving employee-workplace alignment (EWA) and thereby ensuring employee thriving. The final chapter describes a first step towards integrating these theories into an overall interdisciplinary framework for eventually developing a grand EWA theory. The Open Access version of this book, available at <http://www.taylorfrancis.com/books/e/9781003128830>, has been made available under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 license.

A Guide to Prayer in Islam

The Jackknife and Bootstrap

Springer Science & Business Media The jackknife and bootstrap are the most popular data-resampling methods used in statistical analysis. The resampling methods replace theoretical derivations required in applying traditional methods (such as substitution and linearization) in statistical analysis by repeatedly resampling the original data and making inferences from the resamples. Because of the availability of inexpensive and fast computing, these computer-intensive methods have caught on very rapidly in recent years and are particularly appreciated by applied statisticians. The primary aims of this book are (1) to provide a systematic introduction to the theory of the jackknife, the bootstrap, and other resampling methods developed in the last twenty years; (2) to provide a guide for applied statisticians: practitioners often use (or misuse) the resampling methods in situations where no theoretical confirmation has been made; and (3) to stimulate the use of the jackknife and bootstrap and further developments of the resampling methods. The theoretical properties of the jackknife and bootstrap methods are studied in this book in an asymptotic framework. Theorems are illustrated by examples. Finite sample properties of the jackknife and bootstrap are mostly investigated by examples and/or empirical simulation studies. In addition to the theory for the jackknife and bootstrap methods in problems with independent and identically distributed (i.i.d.) data, we try to cover, as much as we can, the applications of the jackknife and bootstrap in various complicated non-i.i.d. data problems.

Insecticides Design Using Advanced Technologies

Springer Science & Business Media Among the highlights of this book are the use of nanotechnology to increase potency of available insecticides, the use of genetic engineering techniques for controlling insect pests, the development of novel insecticides that bind to unique biochemical receptors, the exploration of natural products as a source for environmentally acceptable insecticides, and the use of insect genomics and cell lines for determining biological and biochemical modes of action of new insecticides.

Failure Analysis

A Practical Guide for Manufacturers of Electronic Components and Systems

John Wiley & Sons Failure analysis is the preferred method to investigate product or process reliability and to ensure optimum performance of electrical components and systems. The physics-of-failure approach is the only internationally accepted solution for continuously improving the reliability of materials, devices and processes. The models have been developed from the physical and chemical phenomena that are responsible for degradation or failure of electronic components and materials and now replace popular distribution models for failure mechanisms such as Weibull or lognormal. Reliability engineers need practical orientation around the complex procedures involved in failure analysis. This guide acts as a tool for all advanced techniques, their benefits and vital aspects of their use in a reliability programme. Using twelve complex case studies, the authors explain why failure analysis should be used with electronic components, when implementation is appropriate and methods for its successful use. Inside you will find detailed coverage on: a synergistic approach to failure modes and mechanisms, along with reliability physics and the failure analysis of materials, emphasizing the vital importance of cooperation between a product development team involved the reasons why failure analysis is an important tool for improving yield and reliability by corrective actions the design stage, highlighting the 'concurrent engineering' approach and DfR (Design for Reliability) failure analysis during fabrication, covering reliability monitoring, process monitors and package reliability reliability

resting after fabrication, including reliability assessment at this stage and corrective actions a large variety of methods, such as electrical methods, thermal methods, optical methods, electron microscopy, mechanical methods, X-Ray methods, spectroscopic, acoustical, and laser methods new challenges in reliability testing, such as its use in microsystems and nanostructures This practical yet comprehensive reference is useful for manufacturers and engineers involved in the design, fabrication and testing of electronic components, devices, ICs and electronic systems, as well as for users of components in complex systems wanting to discover the roots of the reliability flaws for their products.

Climate Impacts on the Baltic Sea: From Science to Policy

School of Environmental Research - Organized by the Helmholtz-Zentrum Geesthacht

Springer Science & Business Media The Baltic Sea area is an old cultural landscape with a well developed international framework for monitoring, assessing and managing its marine ecosystems. It provides a good case study for other regions where such management is being set up. The chapters in this book are based on lectures given at a summer school on the Baltic Sea island of Bornholm in the summer of 2009. They cover a range of topics, spanning from detailed descriptions of political agreements that protect the marine environment, to basic modelling instructions, to an assessment of the possible impacts of climate change on the marine ecosystem, to a reflection on the role of climate scientists and their responsibility in society. This interdisciplinary book is primarily directed at students and lecturers of the environmental disciplines to provide an overview of the possible impacts of climate change on the Baltic Sea. It is also intended to serve as a background reference for scientists and policy makers, both for the Baltic Sea area and more generally. The book is a contribution to the BALTEX programme and to the BONUS+ projects ECOSUPPORT and Baltic-C.

Lightning Protection of Aircraft

CreateSpace This book is an attempt to present under one cover the current state of knowledge concerning the potential lightning effects on aircraft and that means that are available to designers and operators to protect against these effects. The impetus for writing this book springs from two sources- the increased use of nonmetallic materials in the structure of aircraft and the constant trend toward using electronic equipment to handle flight-critical control and navigation function.

WDM Systems and Networks

Modeling, Simulation, Design and Engineering

Springer Science & Business Media Modeling, Simulation, Design and Engineering of WDM Systems and Networks provides readers with the basic skills, concepts, and design techniques used to begin design and engineering of optical communication systems and networks at various layers. The latest semi-analytical system simulation techniques are applied to optical WDM systems and networks, and a review of the various current areas of optical communications is presented. Simulation is mixed with experimental verification and engineering to present the industry as well as state-of-the-art research. This contributed volume is divided into three parts, accommodating different readers interested in various types of networks and applications. The first part of the book presents modeling approaches and simulation tools mainly for the physical layer including transmission effects, devices, subsystems, and systems), whereas the second part features more engineering/design issues for various types of optical systems including ULH, access, and in-building systems. The third part of the book covers networking issues related to the design of provisioning and survivability algorithms for impairment-aware and multi-domain networks. Intended for professional scientists, company engineers, and university researchers, the text demonstrates the effectiveness of computer-aided design when it comes to network engineering and prototyping.