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Conceptual Electromagnetics CRC Press This is a textbook on electromagnetic fields and waves completely based on conceptual understanding of electromagnetics. The text provides operational knowledge and firm grasp of electromagnetic fundamentals aimed toward practical engineering applications by combining fundamental theory and a unique and comprehensive collection of as many as 888 conceptual questions and problems in electromagnetics. Conceptual questions are designed to strongly enforce and enhance both the theoretical concepts and understanding and problem-solving techniques and skills in electromagnetics. **Electromagnetics** "Electromagnetics" is a thorough text that enables readers to readily grasp EM fundamentals, develop true problem-solving skills, and really understand and like the material. It is meant as an "ultimate resource" for undergraduate electromagnetics." **Studyguide for Electromagnetics by Notaros, Branislav M.** Cram101 Never HIGHLIGHT a Book Again Includes all testable terms, concepts, persons, places, and events. Cram101 Just the FACTS101 studyguides gives all of the outlines, highlights, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanies: 9780872893795. This item is printed on demand. **Outlines and Highlights for Electromagnetics by Branislav M Notaros, isbn 9780132433846** Academic Internet Pub Incorporated Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanys: 9780132433846 . **Teaching Electromagnetics Innovative Approaches and Pedagogical Strategies** CRC Press Teaching Electromagnetics: Innovative Approaches and Pedagogical Strategies is a guide for educators addressing course content and pedagogical methods primarily at the undergraduate level in electromagnetic theory and its applications. Topics include teaching methods, lab experiences and hands-on learning, and course structures that help teachers respond effectively to trends in learning styles and evolving engineering curricula. The book grapples with issues related to the recent worldwide shift to remote teaching. Each chapter begins with a high-level consideration of the topic, reviews previous work and publications, and gives the reader a broad picture of the topic before delving into details. Chapters include specific guidance for those who want to implement the methods and assessment results and evaluation of the effectiveness of the methods. Respecting the limited time available to the average teacher to try new methods, the chapters focus on why an instructor should adopt the methods proposed in it. Topics include virtual laboratories, computer-assisted learning, and MATLAB® tools. The authors also review flipped classrooms and online teaching methods that support remote teaching and learning. The end result should be an impact on the reader represented by improvements to his or her practical teaching methods and curricular approach to electromagnetics education. The book is intended for electrical engineering professors, students, lab instructors, and practicing engineers with an interest in teaching and learning. In summary, this book: Surveys methods and tools for teaching the foundations of wireless communications and electromagnetic theory Presents practical experience and best practices for topical coverage, course sequencing, and content Covers virtual laboratories, computer-assisted learning, and MATLAB tools Reviews flipped classroom and online teaching methods that support remote teaching and learning Helps instructors in RF systems, field theory, and wireless communications bring their teaching practice up to date Dr. Krishnasamy T. Selvan is Professor in the Department of Electronics & Communication Engineering, SSN College of Engineering, since June 2012. Dr. Karl F. Warnick is Professor in the Department of Electrical and Computer Engineering at BYU. **Conceptual Electromagnetics** CRC Press This is a textbook on electromagnetic fields and waves completely based on conceptual understanding of electromagnetics. The text provides operational knowledge and firm grasp of electromagnetic fundamentals aimed toward practical engineering applications by combining fundamental theory and a unique and comprehensive collection of as many as 888 conceptual questions and problems in electromagnetics. Conceptual questions are designed to strongly enforce and enhance both the theoretical concepts and understanding and problem-solving techniques and skills in electromagnetics. **MATLAB-Based Electromagnetics** Prentice Hall This title can be used to either complement another electromagnetics text, or as an independent resource. Designed primarily for undergraduate electromagnetics, it can also be used in follow-up courses on antennas, propagation, microwaves, advanced electromagnetic theory, computational electromagnetics, electrical machines, signal integrity, etc. This title also provides practical content to current and aspiring industry professionals. MATLAB-Based Electromagnetics provides engineering and physics students and other users with an operational knowledge and firm grasp of electromagnetic fundamentals aimed toward practical engineering applications, by teaching them "hands on" electromagnetics through a unique and comprehensive collection of MATLAB computer exercises and projects. Essentially, the book unifies two themes: it presents and explains electromagnetics using MATLAB on one side, and develops and discusses MATLAB for electromagnetics on the other. MATLAB codes described (and listed) in TUTORIALS or proposed in other exercises provide prolonged benefits of learning. By running codes; generating results, figures, and diagrams; playing movies and animations; and solving a large variety of problems in MATLAB, in class, with peers in study groups, or individually, readers gain a deep understanding of electromagnetics. **Computational Electromagnetics for RF and Microwave Engineering** Cambridge University Press Introduces CEM methods, applying the codes that implement them to real-world engineering problems. **Electromagnetic Boundary Problems** CRC Press Electromagnetic Boundary Problems introduces the formulation and solution of Maxwell's equations describing electromagnetism. Based on a one-semester graduate-level course taught by the authors, the text covers material parameters, equivalence principles, field and source (stream) potentials, and uniqueness, as well as: Provides analytical solutions **MATLAB-Based Electromagnetics** Pearson Higher Ed This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. This title can be used to either complement another electromagnetics text, or as an independent resource. Designed primarily for undergraduate electromagnetics, it can also be used in follow-up courses on antennas, propagation, microwaves, advanced electromagnetic theory, computational electromagnetics, electrical machines, signal integrity, etc. This title also provides practical content to current and aspiring industry professionals. MATLAB-Based Electromagnetics provides engineering and physics students and other users with an operational knowledge and firm grasp of electromagnetic fundamentals aimed toward practical engineering applications, by teaching them "hands on" electromagnetics through a unique and comprehensive collection of MATLAB computer exercises and projects. Essentially, the book unifies two themes: it presents and explains electromagnetics using MATLAB on one side, and develops and discusses MATLAB for electromagnetics on the other. MATLAB codes described (and listed) in TUTORIALS or proposed in other exercises provide prolonged benefits of learning. By running codes; generating results, figures, and diagrams; playing movies and animations; and solving a large variety of problems in MATLAB, in class, with peers in study groups, or individually, readers gain a deep understanding of electromagnetics. **Fundamentals of Electromagnetics with MATLAB** SciTech Publishing This second edition comes from your suggestions for a more lively format, self-learning aids for students, and the need for applications and projects without being distracted from EM Principles. Flexibility Choose the order, depth, and method of reinforcing EM Principles—the PDF files on CD provide Optional Topics, Applications, and Projects. Affordability Not only is this text priced below competing texts, but also the topics on CD (and downloadable to registered users) provide material sufficient for a second term of study with no additional book for students to buy. MATLAB This book takes full advantage of MATLAB's power to motivate and reinforce EM Principles. No other EM books is better integrated with MATLAB. The second edition is even richer and easier to incorporate into course use with the new, self-paced MATLAB tutorials on the CD and available to registered users. **Problem Book in Quantum Field Theory** Springer Science & Business Media The Problem Book in Quantum Field Theory contains about 200 problems with solutions or hints that help students to improve their understanding and develop skills necessary for pursuing the subject. It deals with the Klein-Gordon and Dirac equations, classical field theory, canonical quantization of scalar, Dirac and electromagnetic fields, the processes in the lowest order of perturbation theory, renormalization and regularization. The solutions are presented in a systematic and complete manner. The material covered and the level of exposition make the book appropriate for graduate and undergraduate students in physics, as well as for teachers and researchers. **Electromagnetism for Signal Processing, Spectroscopy and Contemporary Computing Fundamentals and Applications** CRC Press This comprehensive textbook will help readers to acquire a thorough understanding of the fundamentals of electromagnetism and its applications in various areas including spectroscopy, signal processing and contemporary computation. The text introduces the principals and applications of electricity, magnetism and electromagnetic theory which is foundation for communication systems, spectroscopy, and modern computing. It is followed by discussing the digital systems and their importance in computing, difference between digital signal transmission and wireless media, visualization techniques and useful simulation and computational techniques, besides advances in quantum computing. Aimed at senior undergraduate and graduate students in the field of electrical engineering, electronics and communication engineering, this textbook: Provides fundamentals of electromagnetism and its applications in a single volume. Covers recent developments in computing and artificial intelligence. Discussion digital signal processing and wireless communication in depth. Covers advanced applications of electromagnetism in communication, spectroscopy, and computing. Discusses Computer Modelling & Simulation, Artificial Intelligence, and Quantum Computing. **Modeling and Design of Electromagnetic Compatibility for High-Speed Printed Circuit Boards and Packaging** CRC Press Modeling and Design of Electromagnetic Compatibility for High-Speed Printed Circuit Boards and Packaging presents the electromagnetic modelling and design of three major electromagnetic compatibility (EMC) issues related to the high-speed printed circuit board (PCB) and electronic packages: signal integrity (SI), power integrity (PI), and electromagnetic interference (EMI). The emphasis is put on two essential passive components of PCBs and packages: the power distribution network and the signal distribution network. This book includes two parts. Part one talks about the field-circuit hybrid methods used for the EMC modeling, including the modal method, the integral equation method, the cylindrical wave expansion method and the de-embedding method. Part two illustrates EMC design methods and explores the applications of novel metamaterials and two-dimensional materials on traditional EMC problems. This book is designed to enhance worthwhile electromagnetic theory and mathematical methods for practical engineers and to train students with advanced EMC applications. **Electromagnetic Waves** CRC Press Adapted from a successful and thoroughly field-tested Italian text, the first edition of Electromagnetic Waves was very well received. Its broad, integrated coverage of electromagnetic waves and their applications forms the cornerstone on which the author based this second edition. Working from Maxwell's equations to applications in optical communications and photonics, Electromagnetic Waves, Second Edition forges a link between basic physics and real-life problems in wave propagation and radiation. Accomplished researcher and educator Carlo G. Someda uses a modern approach to the subject. Unlike other books in the field, it surveys all major areas of electromagnetic waves in a single treatment. The book begins with a detailed treatment of the mathematics of Maxwell's equations. It follows with a discussion of polarization, delves into propagation in various media, devotes four chapters to guided propagation, links the concepts to practical applications, and concludes with radiation, diffraction, coherence, and radiation statistics. This edition features many new and reworked problems, updated references and suggestions for further reading, a completely revised appendix on Bessel functions, and new definitions such as antenna effective height. Illustrating the concepts with examples in every chapter, Electromagnetic Waves, Second Edition is an ideal introduction for those new to the field as well as a convenient reference for seasoned professionals. **Metamaterials Beyond Crystals, Noncrystals, and Quasicrystals** CRC Press Metamaterials: Beyond Crystals, Noncrystals, and Quasicrystals is a comprehensive and updated research monograph that focuses on recent advances in metamaterials based on the effective medium theory in microwave frequencies. Most of these procedures were conducted in the State Key Laboratory of Millimeter Waves, Southeast University, China. The book conveys the essential concept of metamaterials from the microcosmic structure to the macroscopic electromagnetic properties and helps readers quickly obtain needed skills in creating new devices at microwave frequencies using metamaterials. The authors present the latest progress on metamaterials and transformation optics and provide abundant examples of metamaterial-based devices accompanied with detailed procedures to simulate, fabricate, and measure them. Comprised of ten chapters, the book comprehensively covers both the fundamentals and the applications of metamaterials. Along with an introduction to the subject, the first three chapters discuss effective medium theory and artificial particles. The next three chapters cover homogeneous metamaterials (super crystals), random metamaterials (super noncrystals), and inhomogeneous metamaterials (super quasicrystals). The final four chapters examine gradient-index inhomogeneous metamaterials, nearly isotropic inhomogeneous metamaterials, and anisotropic inhomogeneous metamaterials, after which the authors provide their conclusions and closing remarks. The book is completely self-contained, making it easy to follow. **Book catalog of the Library and Information Services Division Book Catalog of the Library and Information Services Division: Author-title-series indexes High Frequency Communication and Sensing Traveling-Wave Techniques** CRC Press High Frequency Communication and Sensing: Traveling-Wave Techniques introduces novel traveling wave circuit techniques to

boost the performance of high-speed circuits in standard low-cost production technologies, like complementary metal oxide semiconductor (CMOS). A valuable resource for experienced analog/radio frequency (RF) circuit designers as well as undergraduate-level microelectronics researchers, this book: Explains the basics of high-speed signaling, such as transmission lines, distributed signaling, impedance matching, and other common practical RF background material Promotes a dual-loop coupled traveling wave oscillator topology, the trigger mode distributed wave oscillator, as a high-frequency multiphase signal source Introduces a force-based starter mechanism for dual-loop, even-symmetry, multiphase traveling wave oscillators, presenting a single-loop version as a force mode distributed wave antenna (FMDWA) Describes higher-frequency, passive inductive, and quarter-wave-length-based pumped distributed wave oscillators (PDWOs) Examines phased-array transceiver architectures and front-end circuits in detail, along with distributed oscillator topologies Devotes a chapter to THz sensing, illustrating a unique method of traveling wave frequency multiplication and power combining Discusses various data converter topologies, such as digital-to-analog converters (DACs), analog-to-digital converters (ADCs), and GHz-bandwidth sigma-delta modulators Covers critical circuits including phase rotators and interpolators, phase shifters, phase-locked loops (PLLs), delay-locked loops (DLLs), and more It is a significantly challenging task to generate and distribute high-speed clocks. Multiphase low-speed clocks with sharp transition are proposed to be a better option to accommodate the desired timing resolution. High Frequency Communication and Sensing: Traveling-Wave Techniques provides new horizons in the quest for greater speed and performance. **Computational Electromagnetics Domain Decomposition Methods and Practical Applications** "Developed for Computational Physicists, Researchers, and Software Developers at the Practical Level Integrating in-depth mathematical analysis with real-world engineering practice, Computational Electromagnetics: Domain Decomposition Methods and Practical Applications focuses on domain decomposition methods (DDMs) that adequately deal with the vector wave equation. Dedicated specifically to solving time harmonic Maxwell equations, it covers challenges that are typically hard to address using conventional numerical methods. This book adopts the philosophy throughout, that every residual will either equal identically to zero through restrictions on the trial functions or be tested by test functions by ways of dual-pairing. Explore the Use of DDM to Solve Large-Scale Problems The material focuses on a multi-trace combined field integral equation formulation with multiple traces derived and analyzed for EM scattering from a single homogeneous scatterer, and contains numerical examples demonstrating the benefits (accuracy and scalability) of DDM. It provides examples for analyzing and addressing scattering problems that include an electromagnetic wave scattering from a large complex large-scale composite mockup aircraft and an electromagnetic wave scattering from an electrically large inlet structure. Presenting numerous facets of the nonoverlapping domain decomposition methods and their applications, it reveals how these methods can help solve multi-scale time harmonic electromagnetic problems. This book covers: Large finite antenna arrays, metamaterials, antenna systems conformally mounted on large platforms, signal integrity analyses of complex integrated circuits and packaging, and radar echo area computation of complex composite targets applications An alternative approach to formulate the corresponding boundary value problem by incorporating an additional vector variable defined only on the surface The multi-solver domain decomposition method (MS-DDM) which is included in theory and practical engineering applications Computational Electromagnetics: Domain Decomposition Methods and Practical Applications covers the applied aspects of domain decomposition methods for computational electromagnetics, and helps to bridge the gap between multi-scale and multi-physics, and the hands-on application of practical engineering." -- Provided by publisher. **The Finite-Difference Time-Domain Method for Electromagnetics with MATLAB® Simulations** IET This book introduces the powerful Finite-Difference Time-Domain method to students and interested researchers and readers. An effective introduction is accomplished using a step-by-step process that builds competence and confidence in developing complete working codes for the design and analysis of various antennas and microwave devices. This book will serve graduate students, researchers, and those in industry and government who are using other electromagnetics tools and methods for the sake of performing independent numerical confirmation. No previous experience with finite-difference methods is assumed of readers. **Ionosphere and Applied Aspects of Radio Communication and Radar** CRC Press A Complete Reference for the 21st Century Until recently, much of the communications technology in the former Eastern bloc countries was largely unknown. Due to the historically competitive nature of East/West relations, scientific groups operated independently, without the benefit of open communication on theoretical frameworks and experimental technologies. As these countries have begun to bridge the gap and work in a more cooperative environment, the need has grown for a comprehensive guide which assimilates all the information in this vast knowledge bank. Ionosphere and Applied Aspects of Radio Communication and Radar meets the demand for an updated reference on this continually evolving global technology. This book examines the changes that have occurred in the past two or three decades. It thoroughly reviews ionospheric radio propagation, over-horizon and above-horizon radars, and miniature ionospheric stations used for investigating nonregular phenomena occurring in the ionosphere. In addition, it also comprehensively discusses land-satellite and satellite-satellite communications. This volume also reviews an area that has been all but ignored in previous works: the effects of plasma irregularities on radio waves propagation through the inhomogeneous ionosphere. Here, a heavy focus is placed on the effects of these irregular phenomena. And due to the recent wireless revolution, more attention than ever has been aimed on improving the efficiency of land-satellite and satellite-satellite communication networks, which are fully addressed. Included are— Transport processes and photochemistry reactions occurring in the regular homogeneous ionosphere Nonlinear phenomena occurring in the irregular ionosphere Instabilities in the inhomogeneous disturbed ionosphere Various ambient natural and artificial sources and corresponding plasma irregularities Written by two leading scientists, this book will be an invaluable guide to anyone working in this ever-changing field. **Electronic, Magnetic, and Optical Materials** CRC Press This book integrates materials science with other engineering subjects such as physics, chemistry and electrical engineering. The authors discuss devices and technologies used by the electronics, magnetics and photonics industries and offer a perspective on the manufacturing technologies used in device fabrication. The new addition includes chapters on optical properties and devices and addresses nanoscale phenomena and nanoscience, a subject that has made significant progress in the past decade regarding the fabrication of various materials and devices with nanometer-scale features. **Circuits at the Nanoscale Communications, Imaging, and Sensing** CRC Press Circuits for Emerging Technologies Beyond CMOS New exciting opportunities are abounding in the field of body area networks, wireless communications, data networking, and optical imaging. In response to these developments, top-notch international experts in industry and academia present Circuits at the Nanoscale: Communications, Imaging, and Sensing. This volume, unique in both its scope and its focus, addresses the state-of-the-art in integrated circuit design in the context of emerging systems. A must for anyone serious about circuit design for future technologies, this book discusses emerging materials that can take system performance beyond standard CMOS. These include Silicon on Insulator (SOI), Silicon Germanium (SiGe), and Indium Phosphide (InP). Three-dimensional CMOS integration and co-integration with Microelectromechanical (MEMS) technology and radiation sensors are described as well. Topics in the book are divided into comprehensive sections on emerging design techniques, mixed-signal CMOS circuits, circuits for communications, and circuits for imaging and sensing. Dr. Krzysztof Iniewski is a director at CMOS Emerging Technologies, Inc., a consulting company in Vancouver, British Columbia. His current research interests are in VLSI circuits for medical applications. He has published over 100 research papers in international journals and conferences, and he holds 18 international patents granted in the United States, Canada, France, Germany, and Japan. In this volume, he has assembled the contributions of over 60 world-reknown experts who are at the top of their field in the world of circuit design, advancing the bank of knowledge for all who work in this exciting and burgeoning area. **Wireless Multimedia Communications Convergence, DSP, QoS, and Security** CRC Press With the rapid evolution of multimedia communications, engineers and other professionals are generally forced to hoard a plethora of different texts and journals to maintain a solid grasp on essential ideas and techniques in the field. Wireless Multimedia Communications provides researchers and students with a primary reference to help readers take maximum advantage of current systems and uncover opportunities to propose new and novel protocols, applications, and services. Extract the Essentials of System Design, Analysis, Implementation A complete technical reference, the text condenses the essential topics of core wireless multimedia communication technologies, convergence, QoS, and security that apply to everything from networking to communications systems, signal processing, and security. From extensive existing literature, the authors distill the central tenets and primary methods of analysis, design, and implementation, to reflect the latest technologies and architectural concepts. The book addresses emerging challenges to inform the system standardization process and help engineers combat the high error rates and stringent delay constraints that remain a significant challenge to various applications and services. Keep Pace with Detailed Techniques to Optimize Technology The authors identify causes of information loss in point-to-point signal transmission through wireless channels, and then they discuss techniques to minimize that loss. They use examples that illustrate the differences in implementing various systems, ranging from cellular voice telephony to wireless Internet access. Each chapter has been carefully organized with the latest information to serve dual purposes as an easy-to-reference guide for professionals and as a principal text for senior-level university students. **Book of abstracts PHOTONICA2017 The Sixth International School and Conference on Photonics & COST actions: MP1406 and MP1402 & H2020-MSCA-RISE-2015 CARDIALLY workshop The Sixth International School and Conference on Photonics & COST actions: MP1406 and MP1402 & H2020-MSCA-RISE-2015 CARDIALLY workshop** **Institut za nuklearne nauke VINČA Analog and Digital Signal Processing** Brooks/Cole This textbook on signals and systems provides a complete array of MATLAB tools specifically designed for the course, compatible with MATLAB 3.5 or 4.0. This software tool is used in the context of a presentation of systems concepts and analysis techniques. Use of MATLAB helps students to understand what the mathematical abstractions represent, which helps them to understand the behavior of a variety of systems. In response to a wide range of signal inputs. The software provides students with instantaneous feedback which encourages them to explore problems further. Topics covered in the text include signals, systems, convolution, Fourier series and transforms, Laplace transforms, analog filters, sampling, the discrete-time Fourier transform (DTFT), FFT, z-transforms and digital filters. All basic concepts are illustrated by worked examples. End-of-chapter problems include simple drills as well as more challenging exercises that develop or extend the concepts covered. A unique (but optional) feature of this text is the software supplied on disk which contains ready-to-run demonstrations, interactive programs and full-fledged general purpose programs. ..The software runs under MATLAB and includes routines developed for plotting functions, generating random signals, regular and periodic convolution, analytical and numerical solution of differential and difference equations, Fourier analysis, frequency response, asymptotic Bode plots, closed form expressions for Laplace and z-transforms and inverse transforms, classical analog filter design, sampling, quantization, interpolation, FIR and IIR filter design using various methods, and more. So as not to affect the continuity and logical flow of the text material, the programs are described and used only in the accompanying documentation on disk. A MATLAB appendix to each chapter lists the appropriate programs, and each section that can be tied to the software is marked. **MIMO Antennas for Wireless Communication Theory and Design** CRC Press The desired objective of this book is to investigate diversity and mutual coupling effects on MIMO antenna designs for WLAN/WiMAX/LTE applications, controlled with diversity and ground modification techniques including equivalent circuit diagrams. Diversity techniques in MIMO antennas leading to the performance improvement ratings are demonstrated and deliberated. The book contributes towards the development of 2:1 VSWR MIMO antennas with diversity techniques for indoor/outdoor applications for high data rate, QoS, and SNR. The improved MIMO antenna structures are investigated and presented in this book including part of massive MIMO to provide the important aspects of emerging technology. Aimed at researchers, professionals and graduate students in electrical engineering, electromagnetics, communications and signal processing including antenna theory and design, smart antennas, communication systems, this book: Investigates real time MIMO antenna designs for WLAN/WiMAX/LTE applications. Covers effects of ECC, MEG, TARC, and equivalent circuit. Addresses the coupling and diversity aspects of antenna design problem for MIMO systems. Focus on the MIMO antenna designs for the real time applications. Exclusive chapter on 5G Massive MIMO along with case studies throughout the book. **Neural Networks and Deep Learning A Textbook** Springer This book covers both classical and modern models in deep learning. The primary focus is on the theory and algorithms of deep learning. The theory and algorithms of neural networks are particularly important for understanding important concepts, so that one can understand the important design concepts of neural architectures in different applications. Why do neural networks work? When do they work better than off-the-shelf machine-learning models? When is depth useful? Why is training neural networks so hard? What are the pitfalls? The book is also rich in discussing different applications in order to give the practitioner a flavor of how neural architectures are designed for different types of problems. Applications associated with many different areas like recommender systems, machine translation, image captioning, image classification, reinforcement-learning based gaming, and text analytics are covered. The chapters of this book span three categories: The basics of neural networks: Many traditional machine learning models can be understood as special cases of neural networks. An emphasis is placed in the first two chapters on understanding the relationship between traditional machine learning and neural networks. Support vector machines, linear/logistic regression, singular value decomposition, matrix factorization, and recommender systems are shown to be special cases of neural networks. These methods are studied together with recent feature engineering methods like word2vec. Fundamentals of neural networks: A detailed discussion of training and regularization is provided in Chapters 3 and 4. Chapters 5 and 6 present radial-basis function (RBF) networks and restricted Boltzmann machines. Advanced topics in neural networks: Chapters 7 and 8 discuss recurrent neural networks and convolutional neural networks. Several advanced topics like deep reinforcement learning, neural Turing machines, Kohonen self-organizing maps, and generative adversarial networks are introduced in Chapters 9 and 10. The book is written for graduate students, researchers, and practitioners. Numerous exercises are available along with a solution manual to aid in classroom teaching. Where possible, an application-centric view is highlighted in order to provide an understanding of the practical uses of each class of techniques. **Signal Processing and Linear Systems** Oxford University Press, USA "This text presents a comprehensive treatment of signal processing and linear systems suitable for undergraduate students in electrical engineering. It is based on Lathi's widely used book, Linear Systems and Signals, with additional applications to communications, controls, and filtering as well as new chapters on analog and digital filters and digital signal processing. This volume's organization is different from the earlier book. Here, the Laplace transform follows

Fourier, rather than the reverse; continuous-time and discrete-time systems are treated sequentially, rather than interwoven. Additionally, the text contains enough material in discrete-time systems to be used not only for a traditional course in signals and systems but also for an introductory course in digital signal processing. In *Signal Processing and Linear Systems* Lathi emphasizes the physical appreciation of concepts rather than the mere mathematical manipulation of symbols. Avoiding the tendency to treat engineering as a branch of applied mathematics, he uses mathematics not so much to prove an axiomatic theory as to enhance physical and intuitive understanding of concepts. Wherever possible, theoretical results are supported by carefully chosen examples and analogies, allowing students to intuitively discover meaning for themselves"-- **Fundamentals of Physics II Electromagnetism, Optics, and Quantum Mechanics** [Yale University Press](#) Explains the fundamental concepts of Newtonian mechanics, special relativity, waves, fluids, thermodynamics, and statistical mechanics. Provides an introduction for college-level students of physics, chemistry, and engineering, for AP Physics students, and for general readers interested in advances in the sciences. In volume II, Shankar explains essential concepts, including electromagnetism, optics, and quantum mechanics. The book begins at the simplest level, develops the basics, and reinforces fundamentals, ensuring a solid foundation in the principles and methods of physics. **Laser Fundamentals** [Cambridge University Press](#) Laser Fundamentals provides a clear and comprehensive introduction to the physical and engineering principles of laser operation and design. Simple explanations, based throughout on key underlying concepts, lead the reader logically from the basics of laser action to advanced topics in laser physics and engineering. Much new material has been added to this second edition, especially in the areas of solid-state lasers, semiconductor lasers, and laser cavities. This 2004 edition contains a new chapter on laser operation above threshold, including extensive discussion of laser amplifiers. The clear explanations, worked examples, and many homework problems will make this book invaluable to undergraduate and first-year graduate students in science and engineering taking courses on lasers. The summaries of key types of lasers, the use of many unique theoretical descriptions, and the extensive bibliography will also make this a valuable reference work for researchers. **Introductory Electromagnetics** [Addison-Wesley](#) Modern Introductory Electromagnetics relates physical principles to engineering practice with a number of application deriving mathematical tools from physical concepts when needed. **Electric Power Transformer Engineering** [CRC Press](#) Covering the fundamental theory of electric power transformers, this book provides the background required to understand the basic operation of electromagnetic induction as applied to transformers. The book is divided into three fundamental groupings: one stand-alone chapter is devoted to Theory and Principles, nine chapters individually treat major **Math for Scientists Refreshing the Essentials** [Springer](#) This book reviews math topics relevant to non-mathematics students and scientists, but which they may not have seen or studied for a while. These math issues can range from reading mathematical symbols, to using complex numbers, dealing with equations involved in calculating medication equivalents, the General Linear Model (GLM) used in e.g. neuroimaging analysis, finding the minimum of a function, independent component analysis, or filtering approaches. Almost every student or scientist, will at some point run into mathematical formulas or ideas in scientific papers that may be hard to understand, given that formal math education may be some years ago. In this book we will explain the theory behind many of these mathematical ideas and expressions and provide readers with the tools to better understand them. We will revisit high school mathematics and extend and relate this to the mathematics you need to understand the math you may encounter in the course of your research. This book will help you understand the math and formulas in the scientific papers you read. To achieve this goal, each chapter mixes theory with practical pen-and-paper exercises such that you (re)gain experience with solving math problems yourself. Mnemonics will be taught whenever possible. To clarify the math and help readers apply it, each chapter provides real-world and scientific examples. **Fault Location on Power Networks** [Springer Science & Business Media](#) Fault Location on Power Lines enables readers to pinpoint the location of a fault on power lines following a disturbance. The nine chapters are organised according to the design of different locators. The authors do not simply refer the reader to manufacturers' documentation, but instead have compiled detailed information to allow for in-depth comparison. Fault Location on Power Lines describes basic algorithms used in fault locators, focusing on fault location on overhead transmission lines, but also covering fault location in distribution networks. An application of artificial intelligence in this field is also presented, to help the reader to understand all aspects of fault location on overhead lines, including both the design and application standpoints. Professional engineers, researchers, and postgraduate and undergraduate students will find Fault Location on Power Lines a valuable resource, which enables them to reproduce complete algorithms of digital fault locators in their basic forms. **Electromagnetic Field Theories for Engineering** [Springer Science & Business Media](#) A four year Electrical and Electronic engineering curriculum normally contains two modules of electromagnetic field theories during the first two years. However, some curricula do not have enough slots to accommodate the two modules. This book, *Electromagnetic Field Theories*, is designed for Electrical and Electronic engineering undergraduate students to provide fundamental knowledge of electromagnetic fields and waves in a structured manner. A comprehensive fundamental knowledge of electric and magnetic fields is required to understand the working principles of generators, motors and transformers. This knowledge is also necessary to analyze transmission lines, substations, insulator flashover mechanism, transient phenomena, etc. Recently, academics and researchers are working for sending electrical power to a remote area by designing a suitable antenna. In this case, the knowledge of electromagnetic fields is considered as important tool. **Intelligent Distributed Computing XIII** [Springer Nature](#) This book gathers research contributions on recent advances in intelligent and distributed computing. A major focus is placed on new techniques and applications for several highlydemanded research directions: Internet of Things, Cloud Computing and Big Data, Data Mining and Machine Learning, Multi-agent and Service-Based Distributed Systems, Distributed Algorithms and Optimization, Modeling Operational Processes, Social Network Analysis and Inappropriate Content Counteraction, Cyber-Physical Security and Safety, Intelligent Distributed Decision Support Systems, Intelligent Human-Machine Interfaces, VisualAnalytics and others. The book represents the peer-reviewed proceedings of the 13thInternational Symposium on Intelligent Distributed Computing (IDC 2019), which was held in St. Petersburg, Russia, from October 7 to 9, 2019. **Lipid Peroxidation in Biological Systems** [The American Oil Chemists Society](#) **ELINT The Interception and Analysis of Radar Signals** [Artech House Radar Library](#) (Ha Annotation In these times, correctly and quickly identifying a stray electronic blip on a radar screen can have incalculable consequences. Now more than ever, radar electronic intelligence (ELINT) can be the first line of defense for the battlefield or the homeland. Offering new insight into radar signal analysis, this book ensures more reliable and timely gathering of electronic intelligence. Combining and updating the author's two previous definitive books on ELINT, this volume is the indispensable reference for every ELINT professional.