Radar Principles By Nadav Levanon

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Technical Digest - Naval Surface Warfare Center (U.S.) 1991

Understanding Surveillance Technologies: Spy Devices, Privacy, History & Applications, Second Edition - J. K. Peterson Understanding Surveillance Technologies demystifies spy devices and describes how technology is used to observe and record intimate details of people's lives—often without their knowledge or consent. From historical origins to current applications, it explains how satellites, pinhole cameras, cell phone and credit card logs, DNA kits, tiny microphones ("bugs"), chemical sniffers, and implanted RF/ID chips have enabled us to create a two-edged sword—devices that promise security while, at the same time, eroding our privacy. Understanding Surveillance Technologies is profusely illustrated with extensive references and indexes, laying the groundwork for more specialized texts on specific technologies. It covers each of the major sensing devices and explains how they are used in civilian, criminal justice, scientific, national security, and military applications. It also includes recent changes in legislation and the organization of the intelligence community, and discusses how equal access to high-tech sensing devices and encryption schemes has changed society. Understanding Surveillance Technologies is modular, so the chapters can be read in any order, and is written in an accessible, somewhat narrative style, to suit the needs of journalists/newscasters, privacy organizations,

educators, civic planners, and technology centers. It is appropriate as an adjunct reference for criminal justice/law enforcement/military, and forensic trainees, and as a textbook for courses in Surveillance Studies, Sociology, Communications, and Political Science. Now in its second edition, with 1,000 pages and more than 700 diagrams, it is still the only text that comprehensively conveys the breadth of the field.

Monopulse Principles and Techniques - Samuel M. Sherman 2011
Monopulse is a type of radar that sends additional information in the signal in order to avoid problems caused by rapid changes in signal strength. Monopulse is resistant to jamming which is one of the main reasons it is used in most radar systems today. This updated and expanded edition of an Artech House classic offers you a current and comprehensive treatment of monopulse radar principles, techniques, and applications. The Second Edition features two brand new chapters, covering monopulse countermeasures and counter-countermeasures and monopulse for airborne radar and homing seekers.This essential volume categorizes and describes the various forms of monopulse radar, and analyzes their capabilities and limitations. The book also devotes considerable space to monopulse circuits and hardware components, explaining their functions and performance. This practical resource features numerous photographs and illustrations drawn from actual radar systems and components. This book serves as a valuable

reference for both experienced radar engineers and those new to the field.

Radar Signals - Charles Cook 2012-12-02 Radar Signals: An Introduction to Theory and Application introduces the reader to the basic theory and application of radar signals that are designated as large time-bandwidth or pulse-compression waveforms. Topics covered include matched filtering and pulse compression; optimum predetection processing; the radar ambiguity function; and the linear frequency modulation waveform and matched filter. Parameter estimation and discrete coded waveforms are also discussed, along with the effects of distortion on matched-filter signals. This book is comprised of 14 chapters and begins with an overview of the concepts and techniques of pulse compression matched filtering, with emphasis on coding source and decoding device. The discussion then turns to the derivation of the matched-filter properties in order to maximize the signal-to-noise ratio; analysis of radar ambiguity function using the principle of stationary phase; parameter estimation and the method of maximum likelihood; and measurement accuracies of matched-filter radar signals. Waveform design criteria for multiple and dense target environments are also considered. The final chapter describes a number of techniques for designing microwave dispersive delays. This monograph will be a useful resource for graduate students and practicing engineers in the field of radar system engineering.

Advanced Array Systems, Applications and RF Technologies - Nicholas Fourikis 2000-05-16 Advanced Array Systems, Applications and RF Technologies adopts a holistic view of arrays used in radar, electronic warfare, communications, remote sensing and radioastronomy. Radio frequency (RF) and intermediate frequency (IF) signal processing is assuming a fundamental importance, owing to its increasing ability to multiply a system's capabilities in a cost-effective manner. This book comprehensively covers the important front-end RF subsystems of active phased arrays, so offering array designers new and exciting opportunities in signal processing. Provides an up to date record of existing systems from

different applications Explores array systems under development Bridges the gap between textbook coverage of idealized phased arrays and practical knowledge of working phased arrays Recognises the significance of cost to the realization of phased arrays Discusses future advances in the field that promise to deliver even more affordable arrays ['intelligent' or self-focussing/-cohering arrays]

Practical Image and Video Processing Using MATLAB - Oge Marques 2011-08-04 UP-TO-DATE, TECHNICALLY ACCURATE COVERAGE OF ESSENTIAL TOPICS IN IMAGE AND VIDEO PROCESSING This is the first book to combine image and video processing with a practical MATLAB®-oriented approach in order to demonstrate the most important image and video techniques and algorithms. Utilizing minimal math, the contents are presented in a clear, objective manner, emphasizing and encouraging experimentation. The book has been organized into two parts. Part I: Image Processing begins with an overview of the field, then introduces the fundamental concepts, notation, and terminology associated with image representation and basic image processing operations. Next, it discusses MATLAB® and its Image Processing Toolbox with the start of a series of chapters with hands-on activities and step-by-step tutorials. These chapters cover image acquisition and digitization; arithmetic, logic, and geometric operations; point-based, histogram-based, and neighborhood-based image enhancement techniques; the Fourier Transform and relevant frequency-domain image filtering techniques; image restoration; mathematical morphology; edge detection techniques; image segmentation; image compression and coding; and feature extraction and representation. Part II: Video Processing presents the main concepts and terminology associated with analog video signals and systems, as well as digital video formats and standards. It then describes the technically involved problem of standards conversion, discusses motion estimation and compensation techniques, shows how video sequences can be filtered, and concludes with an example of a solution to object detection and tracking in video sequences using MATLAB®. Extra features of this book include: More than 30 MATLAB®

tutorials, which consist of step-by-step guides toexploring image and video processing techniques using MATLAB® Chapters supported by figures, examples, illustrative problems, and exercises Useful websites and an extensive list of bibliographical references This accessible text is ideal for upper-level undergraduate and graduate students in digital image and video processing courses, as well as for engineers, researchers, software developers, practitioners, and anyone who wishes to learn about these increasingly popular topics on their own.

Extreme Events in Geospace - Natalia Buzulukova 2017-12-01
Extreme Events in Geospace: Origins, Predictability, and Consequences helps deepen the understanding, description, and forecasting of the complex and inter-related phenomena of extreme space weather events. Composed of chapters written by representatives from many different institutions and fields of space research, the book offers discussions ranging from definitions and historical knowledge to operational issues and methods of analysis. Given that extremes in ionizing radiation, ionospheric irregularities, and geomagnetically induced currents may have the potential to disrupt our technologies or pose danger to human health, it is increasingly important to synthesize the information available on not only those consequences but also the origins and predictability of such events. Extreme Events in Geospace: Origins, Predictability, and Consequences is a valuable source for providing the latest research for geophysicists and space weather scientists, as well as industries impacted by space weather events, including GNSS satellites and radio communication, power grids, aviation, and human spaceflight. The list of first/second authors includes M. Hapgood, N. Gopalswamy, K.D. Leka, G. Barnes, Yu. Yermolaev, P. Riley, S. Sharma, G. Lakhina, B. Tsurutani, C. Ngwira, A. Pulkkinen, J. Love, P. Bedrosian, N. Buzulukova, M. Sitnov, W. Denig, M. Panasyuk, R. Hajra, D. Ferguson, S. Lai, L. Narici, K. Tobiska, G. Gapirov, A. Mannucci, T. Fuller-Rowell, X. Yue, G. Crowley, R. Redmon, V. Airapetian, D. Boteler, M. MacAlester, S. Worman, D. Neudegg, and M. Ishii. Helps to define extremes in space weather and describes existing methods of analysis Discusses current

scientific understanding of these events and outlines future challenges Considers the ways in which space weather may affect daily life Demonstrates deep connections between astrophysics, heliophysics, and space weather applications, including a discussion of extreme space weather events from the past Examines national and space policy issues concerning space weather in Australia, Canada, Japan, the United Kingdom, and the United States

Exploratory Data Analysis with MATLAB - Wendy L. Martinez 2017-08-07
Praise for the Second Edition: "The authors present an intuitive and easy-to-read book. ... accompanied by many examples, proposed exercises, good references, and comprehensive appendices that initiate the reader unfamiliar with MATLAB." —Adolfo Alvarez Pinto, International Statistical Review "Practitioners of EDA who use MATLAB will want a copy of this book. ... The authors have done a great service by bringing together so many EDA routines, but their main accomplishment in this dynamic text is providing the understanding and tools to do EDA. —David A Huckaby, MAA Reviews Exploratory Data Analysis (EDA) is an important part of the data analysis process. The methods presented in this text are ones that should be in the toolkit of every data scientist. As computational sophistication has increased and data sets have grown in size and complexity, EDA has become an even more important process for visualizing and summarizing data before making assumptions to generate hypotheses and models. Exploratory Data Analysis with MATLAB, Third Edition presents EDA methods from a computational perspective and uses numerous examples and applications to show how the methods are used in practice. The authors use MATLAB code, pseudo-code, and algorithm descriptions to illustrate the concepts. The MATLAB code for examples, data sets, and the EDA Toolbox are available for download on the book's website. New to the Third Edition Random projections and estimating local intrinsic dimensionality Deep learning autoencoders and stochastic neighbor embedding Minimum spanning tree and additional cluster validity indices Kernel density estimation Plots for visualizing data distributions, such as beanplots and violin plots

A chapter on visualizing categorical data
Pulse Doppler Radar - Clive Alabaster
2012-06-30
The book is organized into three parts, each one building on the material of the previous sections. Part I (Chapters 1-8) covers the basic principles to lay sound foundations for the following parts of the book. It emphasizes classic processing techniques, especially the fast Fourier transform (FFT), and microwave engineering issues, antennas, and hardware. The second part of the book deals with the theory and techniques specific to pulse Doppler radar. This is subdivided into Part IIA (Chapters 9-10), which covers high PRF pulse Doppler, and Part IIB (Chapters 11-15), which covers medium PRF pulse Doppler. A major theme is that of PRF selection and optimization, other waveform design issues, and the problem of ghosting. While high and medium PRF pulse Doppler techniques have become synonymous with airborne fire control radars, they are used over a broad spectrum of airborne and surface-based radar applications. Part II does emphasize the airborne radar case, but it does not neglect the surface-based radar. Finally, Part III (Chapters 16-19) presents a series of four case studies. Each of these case studies applies the material of Part II whilst also highlighting additional radar techniques (and, in some cases, non-radar considerations) specific to the application. Such is the prevalence of pulse Doppler radars today; the number of case studies that could have been considered is well into double figures. However, the four presented here suffice to illustrate the wide variety of pulse Doppler radar applications.
Measuring Ocean Currents - Antony Joseph 2013-08-12
Measuring Ocean Currents: Tools, Technologies, and Data covers all major aspects of ocean current measurements in view of the implications of ocean currents on changing climate, increasing pollution levels, and offshore engineering activities. Although more than 70% of the Earth is covered by ocean, there is limited information on the countless fine- to large-scale water motions taking place within them. This book fills that information gap as the first work that summarizes the state-of-the-art methods and instruments used for surface, subsurface, and abyssal ocean current measurements.

Readers of this book will find a wealth of information on Lagrangian measurements, horizontal mapping, imaging, Eulerian measurements, and vertical profiling techniques. In addition, the book describes modern technologies for remote measurement of ocean currents and their signatures, including HF Doppler radar systems, satellite-borne sensors, ocean acoustic tomography, and more. Crucial aspects of ocean currents are described in detail as well, including dispersion of effluents discharged into the sea and transport of beneficial materials—as well as environmentally hazardous materials—from one region to another. The book highlights several important practical applications, showing how measurements relate to climate change and pollution levels, how they affect coastal and offshore engineering activities, and how they can aid in tsunami detection. Coverage of measurement, mapping and profiling techniques Descriptions of technologies for remote measurement of ocean currents and their signatures Reviews crucial aspects of ocean currents, including special emphasis on the planet-spanning thermohaline circulation, known as the ocean's "conveyor belt," and its crucial role in climate change
Radar Signals - Nadav Levanon 2004-07-01
A text and general reference on the design and analysis of radar signals As radar technology evolves to encompass a growing spectrum of applications in military, aerospace, automotive, and other sectors, innovations in digital signal processing have risen to meet the demand. Presenting a long overdue, up-to-date, dedicated resource on radar signals, the authors fill a critical gap in radar technology literature. Radar Signals features in-depth coverage of the most prevalent classical and modern radar signals used today, as well as new signal concepts developed in recent years. Inclusion of key MATLAB software codes throughout the book demonstrates how they dramatically simplify the process of describing and analyzing complex signals. Topics covered include: * Matched filter and ambiguity function concepts * Basic radar signals, with both analytical and numerical analysis * Frequency modulated and phase-coded pulses * Complete discussion of band-limiting schemes * Coherent LFM pulse trains-

the most popular radar signal * Diversity in pulse trains, including stepped frequency pulses * Continuous-wave signals * Multicarrier phase-coded signals Combining lucid explanation, preferred signal tables, MATLAB codes, and problem sets in each chapter, Radar Signals is an essential reference for professionals-and a systematic tutorial for any seeking to broaden their knowledge base in this dynamic field.

MTI Radar - D. Curtis Schleher 1978

Air and Spaceborne Radar Systems - Philippe Lacomme 2001-03-27
A practical tool on radar systems that will be of major help to technicians, student engineers and engineers working in industry and in radar research and development. The many users of radar as well as systems engineers and designers will also find it highly useful. Also of interest to pilots and flight engineers and military command personnel and military contractors. ""This introduction to the field of radar is intended for actual users of radar. It focuses on the history, main principles, functions, modes, properties and specific nature of modern airborne radar. The book examines radar's role within the system when carrying out is assigned missions, showing the possibilities of radar as well as its limitations. Finally, given the changing operational requirements and the potential opened up by modern technological developments, a concluding section describes how radar may evolve in the future. The authors review the current state of the main types of airborne and spaceborne radar systems, designed for specific missions as well as for the global environment of their host aircraft or satellites. They include numerous examples of the parameters of these radars. The emphasis in the book is not only on a particular radar technique, but equally on the main radar functions and missions. Even if a wide range of techniques are described in this book, the focus is on those which are connected to practical applications.

Detecting and Classifying Low Probability of Intercept Radar - Phillip E. Pace 2004
Pace (Naval Postgraduate School) presents the principles of radar design that enable a low probability of intercept (LPI) by a noncooperative intercept receiver. The RF

system uses complex pulse compression CW waveforms, low side lobe antennas, and power management techniques to render itself virtually undetectable. The second part of the textbook investigates three algorithms for providing the intercept receiver with a processing gain that is close to the radar's matched filter processing gain, and quantifies their performance with LPI waveforms. The CD-ROM contains MATLAB code for evaluating the complex LPI radar-receiver interactions. Annotation : 2004 Book News, Inc., Portland, OR (booknews.com).

Design of Multi-Frequency CW Radars - M. Jankiraman 2007
This book deals with the basic theory for design and analysis of Low Probability of Intercept (LPI) radar systems. The design of one such multi-frequency high resolution LPI radar, PANDORA, is covered. This work represents the first time that the topic of multi-frequency radars is discussed in such detail and it is based on research conducted by the author in The Netherlands. The book provides the design tools needed for development, design, and analysis of high resolution radar systems for commercial as well as military applications. Software written in MATLAB and C++ is provided to guide the reader in calculating radar parameters and in ambiguity function analysis. Some radar simulation software is also included.

Israel's First Fifty Years - Robert O. Freedman 2009-09-01
"Deals authoritatively with some of the most critical issues facing Israel in the last half-century. The authors write with objectivity, presenting original insights in a diverse range of subjects."--Don Peretz, emeritus professor of political science, State University of New York at Binghamton This comprehensive review of the first 50 years of Israel's existence surveys the major events of its history as well as the underlying trends in Israeli politics, economics, and foreign policy that will direct the country's evolution into the new century. Combining a rich variety of viewpoints among Israeli, Arab, and American scholars, representatives of the political left and right, and, among the Jewish scholars, representatives of both secular and religious perspectives, this is the single-volume source for anyone seeking to understand Israel as it enters the 21st century. Contents 1.

Moscow and Israel: The Ups and Downs of a Fifty-Year Relationship, by Robert O. Freedman 2. U.S.-Israel Relations since 1948, by Robert J. Lieber 3. Israel and the American Jewish Community: Changing Realities Test Traditional Ties, by George E. Gruen 4. Israel and the Arab States: The Long Road to Normalization, by Malik Mufti 5. Israeli Thinking about the Palestinians: A Historical Survey, by Mark Tessler 6. Labor during Fifty Years of Israeli Politics, by Myron J. Aronoff 7. The Right in Israeli Politics: The Nationalist Ethos in the Jewish Democracy, by Ilan Peleg 8. Religio-Politics and Social Unity in Israel: Israel's Religious Parties, by Chaim J. Waxman 9. The Arab Parties, by Elie Rekhess 10. From Agricultural Pioneers to the "Silicon Valley" of the Middle East: The Changing Political Economy of Israel, by Ofira Seliktar 11. The Press and Civil Society in Israel, by Michael Keren 12. Epilogue: The Israeli Elections of 1999, by Mark Rosenblum Robert O. Freedman is president and Peggy Meyerhoff Pearlstone professor of political science at Baltimore Hebrew University. Among his previous books are The Intifada: Its Impact on Israel, the Arab World, and the Superpowers (UPF, 1991), The Middle East and the Peace Process: The Impact of the Oslo Accords (UPF, 1998), Israel Under Rabin, and Israel in the Begin Era.

Radar Principles - Nadav Levanon 1988-05-19 An advanced treatment of the main concepts of radar. Systematic andorganized, it nicely balances readability with mathematical rigor.Many techniques and examples have been chosen from the radarindustry (Rayleigh fluctuating targets are used as they yieldsimple expressions for the probability of detection), and othersfor their pedagogical value (Costas signals lead the coded radarsignals because their ambiguity function can be intuitivelydeduced). Ordered statistics is covered in more depth than otherCFAR techniques because its performance can be obtainedanalytically without resorting to simulation methods. Contains manyexercises. An Instructor's Manual presenting detailed solutions to all theproblems in the book is available from the Wiley editorialdepartment.

FMCW Radar Design - M. Jankiraman 2018-07-31 Frequency Modulated Continuous Wave (FMCW) radars are a fast expanding area in radar technology due to their stealth features, extremely high resolutions, and relatively clutter free displays. This groundbreaking resource offers engineers expert guidance in designing narrowband FMCW radars for surveillance, navigation, and missile seeking. It also provides professionals with a thorough understanding of underpinnings of this burgeoning technology. Moreover, readers find detailed coverage of the RF components that form the basis of radar construction. Featuring clear examples, the book presents critical discussions on key applications. Practitioners learn how to use time-saving MATLAB® and SystemVue design software to help them with their challenging projects in the field. Additionally, this authoritative reference shows engineers how to analyze FMCW radars of various types, including missile seekers and missile altimeters. Packed with over 600 equations, the book presents discussions on key radar algorithms and their implementation, as well as designing modern radar to meet given operational requirements.

MATLAB Simulations for Radar Systems Design - Bassem R. Mahafza 2003-12-17 Simulation is integral to the successful design of modern radar systems, and there is arguably no better software for this purpose than MATLAB. But software and the ability to use it does not guarantee success. One must also: Understand radar operations and design philosophy Know how to select the radar parameters to meet the design req

Fundamentals of Radar Signal Processing - Mark A. Richards 2005-07-15 Advances in DSP (digital signal processing) have radically altered the design and usage of radar systems -- making it essential for both working engineers as well as students to master DSP techniques. This text, which evolved from the author's own teaching, offers a rigorous, in-depth introduction to today's complex radar DSP technologies. Contents: Introduction to Radar Systems * Signal Models * Sampling and Quantization of Pulsed Radar Signals * Radar Waveforms * Pulse Compression Waveforms * Doppler Processing * Detection Fundamentals * Constant False Alarm Rate (CFAR) Detection * Introduction to Synthetic Aperture Imaging Microwave Journal - 1990

Introduction to Airborne Radar - George W. Stimson 1998-01-01
An introduction to the subject for non-specialists: engineers, technicians, pilots, and aerospace industry marketing, public relations, and customer support personnel. Also a reference for specialists in the field. The completely rewritten and revised Second Edition updates the original published by the Hughes Aircraft Company.

Radar Signals - Nadav Levanon 2004-09-21
A text and general reference on the design and analysis of radar signals As radar technology evolves to encompass a growing spectrum of applications in military, aerospace, automotive, and other sectors, innovations in digital signal processing have risen to meet the demand. Presenting a long overdue, up-to-date, dedicated resource on radar signals, the authors fill a critical gap in radar technology literature. Radar Signals features in-depth coverage of the most prevalent classical and modern radar signals used today, as well as new signal concepts developed in recent years. Inclusion of key MATLAB software codes throughout the book demonstrates how they dramatically simplify the process of describing and analyzing complex signals. Topics covered include: * Matched filter and ambiguity function concepts * Basic radar signals, with both analytical and numerical analysis * Frequency modulated and phase-coded pulses * Complete discussion of band-limiting schemes * Coherent LFM pulse trains-the most popular radar signal * Diversity in pulse trains, including stepped frequency pulses * Continuous-wave signals * Multicarrier phase-coded signals Combining lucid explanation, preferred signal tables, MATLAB codes, and problem sets in each chapter, Radar Signals is an essential reference for professionals-and a systematic tutorial for any seeking to broaden their knowledge base in this dynamic field.

Corrosion Engineering - Branko N. Popov 2015-02-26
Corrosion Engineering: Principles and Solved Problems covers corrosion engineering through an extensive theoretical description of the principles of corrosion theory, passivity and corrosion prevention strategies and design of corrosion protection systems. The book is updated with results published in papers and reviews in the last twenty years. Solved corrosion case studies, corrosion analysis and solved corrosion problems in the book are presented to help the reader to understand the corrosion fundamental principles from thermodynamics and electrochemical kinetics, the mechanism that triggers the corrosion processes at the metal interface and how to control or inhibit the corrosion rates. The book covers the multidisciplinary nature of corrosion engineering through topics from electrochemistry, thermodynamics, mechanical, bioengineering and civil engineering. Addresses the corrosion theory, passivity, material selections and designs Covers extensively the corrosion engineering protection strategies Contains over 500 solved problems, diagrams, case studies and end of chapter problems Could be used as a text in advanced/graduate corrosion courses as well self-study reference for corrosion engineers

Target Position Estimation with a Continuous Wave Radar Network - Urs Lübbert 2005

Fundamentals of Satellite Remote Sensing - Emilio Chuvieco 2016-02-24
Fundamentals of Satellite Remote Sensing: An Environmental Approach, Second Edition is a definitive guide to remote sensing systems that focuses on satellite-based remote sensing tools and methods for space-based Earth observation (EO). It presents the advantages of using remote sensing data for studying and monitoring the planet, and emphasizes co

Radar Design Principles - Fred E. Nathanson 1999
Offers coverage of digital technology, weather radar, microburst detection, and digital correlators. Provides an evaluation of theory as well as a review of development in practical equipment design and construction. Includes four chapters on equations and detection theory, plus seven on waveforms and signal processing.

Detecting and Classifying Low Probability of Intercept Radar - Phillip E. Pace 2009
This revised and expanded second edition brings you to the cutting edge with new chapters on LPI radar design, including over-the-horizon radar, random noise radar, and netted LPI radar. You also discover critical LPI detection techniques, parameter extraction signal

processing techniques, and anti-radiation missile design strategies to counter LPI radar.

Advances in Bistatic Radar - Nicholas J. Willis 2007-06-30
This comprehensive reference updates bistatic and multistatic radar developments since the publication of Nicholas Willis' seminal book Bistatic Radar published in 1991 and revised in 1995. The book is organized into two major sections: Bistatic/ Multistatic Radar Systems and Bistatic Clutter and Signal Processing. New and recently declassified military applications are documented. Civil applications are detailed for the first time, including commercial and scientific systems. Several of the most honored radar engineers of this era provide expertise in each of these applications. Professionals in radar and sonar will find this book a valuable resource

Understanding Surveillance Technologies - J.K. Petersen 2000-09-21
From electronic wire taps to baby monitors and long-distance video and listening devices, startling changes occur everyday in how we gather, interpret, and transmit information. An extraordinary range of powerful new technologies has come into existence to meet the requirements of this expanding field. Your search for a comprehensive resourc

The Quiet Decade - Udi Dekel 2017
"The Second Lebanon War broke out on July 12, 2006, without either Israel or Hezbollah intending this escalation. However, the abduction of IDF soldiers that day by a Hezbollah cell created a new reality in the north that prompted Israel to embark on a military operation, which ultimately became a war. The course of the war and its outcomes strongly affected subsequent internal and external Israeli, Lebanese, and regional processes. Hindsight provides an opportunity to examine the war and its ramifications from a broader and more balanced perspective than is possible in the heat of the moment. Studying the past and learning its lessons allow a better understanding of the subsequent decade, shed light on the current state of Israel's northern sector, and contribute to an assessment of possible future scenarios"--Preface.

Principles of Modern Radar - Mark A. Richards 2012-10-16
This book offers a much-needed professional reference for practicing radar engineers. It provides the stepping stones under one cover to advanced practice with overview discussions of the most commonly used techniques for radar design, thereby bridging readers to single-topic advanced books, papers, and presentations.

Phase-coded Pulse Compression - 2017

Astronomical Optics - Daniel J. Schroeder 2012-12-02
Written by a recognized expert in the field, this clearly presented, well-illustrated book provides both advanced level students and professionals with an authoritative, thorough presentation of the characteristics, including advantages and limitations, of telescopes and spectrographic instruments used by astronomers of today. Written by a recognized expert in the field Provides both advanced level students and professionals with an authoritative, thorough presentation of the characteristics, including advantages and limitations, of telescopes and spectrographic instruments used by astronomers of today

Radar and ARPA Manual - Alan G. Bole 2013-11-20
This fully revised new edition covers the complete radar/ARPA installation and serves as the most comprehensive and up-to-date reference on equipment and techniques for radar observers using older and newer systems alike. Suitable for use as a professional reference or as a training text, the book covers all aspects of radar, ARPA and integrated bridge systems technology (including AIS, ECDIS and GNSS) and their role in shipboard operations. It is a valuable resource for larger vessels and also covers the needs of leisure and amateur sailors for whom this technology is now accessible. Radar and ARPA Manual provides essential information for professional mariners, including those on training courses for electronic navigation systems and professional certificates internationally. Reference is made throughout to IMO (International Maritime Organization) Performance Standards, the role of radar in navigation and in collision avoidance, and to international professional and amateur marine operations qualifications. The most up-to-date book available, with comprehensive treatment of modern radar and ARPA systems and ECDIS

(Electronic Chart Display & Information Systems) Full coverage of IMO performance standards relating to radar and navigational technology on new and established vessels Covers best practice use of equipment as well as underlying principles, with essential mathematics and complicated concepts illustrated through the use of clear illustrations
Quantum Harmonic Analysis - Maurice A. de Gosson 2021-07-05
Quantum mechanics is arguably one of the most successful scientific theories ever and its applications to chemistry, optics, and information theory are innumerable. This book provides the reader with a rigorous treatment of the main mathematical tools from harmonic analysis which play an essential role in the modern formulation of quantum mechanics. This allows us at the same time to suggest some new ideas and methods, with a special focus on topics such as the Wigner phase space formalism and its applications to the theory of the density operator and its entanglement properties. This book can be used with profit by advanced undergraduate students in mathematics and physics, as well as by confirmed researchers.
Handbook of Surveillance Technologies - J.K. Petersen 2012-01-23
From officially sanctioned, high-tech operations to budget spy cameras and cell phone video, this updated and expanded edition of a bestselling handbook reflects the rapid and significant growth of the surveillance industry. The Handbook of Surveillance Technologies, Third Edition is the only comprehensive work to chronicle the background and curre
Principles of Modern Radar - Mark A. Richards 2010-06-30
Dr. John Milan, radar consultant; formerly 36 years with ITT Gilfillan, IEEE AESS Radar Systems Panel --
Radar Principles with Applications to Tracking Systems - Philip L. Bogler 1990-02
Of related interest … Microwave Passive Direction Finding Stephen E. Lipsky This breakthrough work answers the need of every engineer in search of a comprehensive, single source on DF technology. Microwave Passive Direction Finding succinctly unifies DF theory, provides representative block diagrams of working equipment, and details the methods of

calculating and predicting system performance. Sections cover evolution and use of monopulse passive DF receiver theory, design of antenna elements for conformal DF coverage, receiver configurations, DF antenna arrays, computation methods for signal detection, and much more. Never before published material includes new systems concepts such as digital preprocessing, supercommutation, and wide RF bandwidth noise detection methods. With tips on preparing proposals for new business, this reference covers every aspect of the principles and practice of DF technology. 1987 (0 471-83454-8) 298 pp. Radar Principles Nadav Levanon With this first published textbook on the subject, practicing engineers and graduate students will quickly master the basic concepts of radar science. A clear, straightforward introduction to the discipline through an analytical and problem-solving mode, this unique book features mathematical analysis and proofs, fully analyzed examples, and problem sections—all selected from the author's course assignments. Key topics include propagation, radar cross section, clutter, radar signals, the ambiguity function, measurement accuracy, coherent processing, Synthetic Aperture Radar and monopulse. The text's tutorial format, consistent terminology, and 141 illustrations (including 3-D plots of ambiguity functions) make it an optimal self-study tool, classroom text, and professional reference. 1988 (0 471-85881-1) 308 pp. Optimal Radar Tracking Systems George Biernson Here is a systematic unveiling of the methods and means underlying the design of radar tracking technology. Topics covered include issues essential to an understanding of Altair radar as well as target-tracking systems. Kalman filter theory, feedback control, modulation and demodulation of signals, digital sampled-data systems, digital computer simulation, statistical analysis of random signals, detection and tracking processes in a radar system are developed first from their rudiments toward a more advanced discussion. Offering a breadth of technical detail unusual in the unclassified literature, this study is of paramount importance to those involved in tracking applications that use optical signal, sonar signal, or RF telemetry signals. 1989 (0 471-50673-7) 560 pp.
Foxbats Over Dimona - Isabella Ginor

2008-10-01

Isabella Ginor and Gideon Remez's groundbreaking history of the Six-Day War in 1967 radically changes our understanding of that conflict, casting it as a crucial arena of Cold War intrigue that has shaped the Middle East to this day. The authors, award-winning Israeli journalists and historians, have investigated newly available documents and testimonies from the former Soviet Union, cross-checked them against Israeli and Western sources, and arrived at fresh and startling conclusions. Contrary to previous interpretations, Ginor and Remez's book shows that the Six-Day War was the result of a joint Soviet-Arab gambit to provoke Israel into a preemptive attack. The authors reveal how the Soviets received a secret Israeli message indicating that Israel, despite its official ambiguity, was about to acquire nuclear weapons. Determined to destroy Israel's nuclear program before it could produce an atomic bomb, the Soviets then began preparing for war--well before Moscow accused Israel of offensive intent, the overt trigger of the crisis. Ginor and Remez's startling account details how the Soviet-Arab onslaught was to be unleashed once Israel had been drawn into action and was branded as the aggressor. The Soviets had submarine-based nuclear missiles poised for use against Israel in case it already possessed and tried to use an atomic device, and the USSR prepared and actually began a marine landing on Israel's shores backed by strategic bombers and fighter squadrons. They sent their most advanced, still-secret aircraft, the MiG-25 Foxbat, on provocative sorties over Israel's Dimona nuclear complex to prepare the planned attack on it, and to scare Israel into making the first strike. It was only the unpredicted devastation of Israel's response that narrowly thwarted the Soviet design.