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Progress in Image Analysis and Processing, ICIAP 2013 Alfredo Petrosino 2013-09-02 This two volume set (LNCS 8156 and 8157) constitutes the refereed proceedings of the 17th International Conference on Image Analysis and Processing, ICIAP 2013, held in Naples, Italy, in September 2013. The 162 papers presented were carefully reviewed and selected from 354 submissions. The papers aim at highlighting the connection and synergies of image processing and analysis with pattern recognition and machine learning, human computer systems, biomedical imaging and applications, multimedia interaction and processing, 3D computer vision, and understanding objects and scene.

Progress in Systems Engineering Henry Selvaraj 2014-08-12 This collection of proceedings from the International Conference on Systems Engineering, Las Vegas, 2014 is orientated toward systems engineering, including topics like aero-space, power systems, industrial automation and robotics, systems theory, control theory, artificial intelligence, signal processing, decision support, pattern recognition and machine learning, information and communication technologies, image processing, and computer vision as well as its applications. The volume's main focus is on models, algorithms, and software tools that facilitate efficient and convenient utilization of modern achievements in systems engineering.

UX Design and Usability Mentor Book Emrah Yayici 2014-04 UX Design and Usability Mentor Book includes best practices and real-life examples in a broad range of topics like: UX design techniques Usability testing techniques such as eye-tracking User interface design guidelines Mobile UX design principles Prototyping Lean product development with agile vs. waterfall Use cases User profiling Personas Interaction design Information architecture Content writing Card sorting Mind-mapping Wireframes Automation tools Customer experience evaluation The book includes real-life experiences to help readers apply these best practices in their own organizations. UX Design and Usability Mentor Book is an extension of best-selling Business Analyst's Mentor Book. Thanks to the integrated business analysis and UX design methodology it presents, the book can be used as a guideline to create user interfaces that are both functional and usable.

Advances in Wireless Sensors and Sensor Networks Subhas Chandra Mukhopadhyay 2010-04-16 In recent times wireless sensors and sensor networks have become a great interest to research, scientific and technological community. Though the sensor networks have been in place for more than a few decades now, the wireless domain has opened up a whole new application spaces of sensors. Wireless sensors and sensor networks are different from traditional wireless networks as well computer networks and therefore pose more challenges to solve such as limited energy, restricted life time, etc. This book intends to illustrate and to collect recent advances in wireless sensors and sensor networks, not as an encyclopedia but as clever support for scientists, students and researchers in order to stimulate exchange and discussions for further developments.

Design and Analysis of Modern Tracking Systems Samuel S. Blackman 1999 Here's a thorough overview of the

state-of-the-art in design and implementation of advanced tracking for single and multiple sensor systems. This practical resource provides modern system designers and analysts with in-depth evaluations of sensor management, kinematic and attribute data processing, data association, situation assessment, and modern tracking and data fusion methods as applied in both military and non-military arenas.

Beyond the Kalman Filter: Particle Filters for Tracking Applications Branko Ristic 2003-12-01 For most tracking applications the Kalman filter is reliable and efficient, but it is limited to a relatively restricted class of linear Gaussian problems. To solve problems beyond this restricted class, particle filters are proving to be dependable methods for stochastic dynamic estimation. Packed with 867 equations, this cutting-edge book introduces the latest advances in particle filter theory, discusses their relevance to defense surveillance systems, and examines defense-related applications of particle filters to nonlinear and non-Gaussian problems. With this hands-on guide, you can develop more accurate and reliable nonlinear filter designs and more precisely predict the performance of these designs. You can also apply particle filters to tracking a ballistic object, detection and tracking of stealthy targets, tracking through the blind Doppler zone, bi-static radar tracking, passive ranging (bearings-only tracking) of maneuvering targets, range-only tracking, terrain-aided tracking of ground vehicles, and group and extended object tracking.

Intelligent Data analysis and its Applications, Volume I Jeng-Shyang Pan 2014-05-26 This volume presents the proceedings of the First Euro-China Conference on Intelligent Data Analysis and Applications (ECC 2014), which was hosted by Shenzhen Graduate School of Harbin Institute of Technology and was held in Shenzhen City on June 13-15, 2014. ECC 2014 was technically co-sponsored by Shenzhen Municipal People's Government, IEEE Signal Processing Society, Machine Intelligence Research Labs, VSB-Technical University of Ostrava (Czech Republic), National Kaohsiung University of Applied Sciences (Taiwan), and Secure E-commerce Transactions (Shenzhen) Engineering Laboratory of Shenzhen Institute of Standards and Technology.

The Use of Applied Technology in Team Sport Jos? Pino-Ortega 2021-07-23 The use of technology within sport is well established, most professional sport teams engage in the use of electronic performance and tracking systems. This book is the first to offer a deep and structured examination of these technologies and how they are used in a team sport setting. The Use of Applied Technology in Team Sport describes and assists researchers, academics and professionals with understanding the methodology around applied technology in sport, examining what systems track players' performance and who are the manufacturers that provide these systems. This new volume goes on to describe how to apply the systems, highlights the ways of reporting analysis information and helps the reader to know and understand the future avenues of research and development. The Use of Applied Technology in Team Sport is considered an essential guide for researchers, academics and students as well as professionals working in the areas of Applied Sport Science, Coaching, and subjects relating to Physiology, Biomechanics, Sports Engineering, Sports Technology and Performance Analysis in Sport.

Genetic and Evolutionary Computation for Image Processing and Analysis Stefano Cagnoni 2008

Advances in Smart Grid and Renewable Energy Sabyasachi SenGupta 2017-10-25 This volume comprises select proceedings of ETAEERE-2016. The volume offers state-of-the-art chapters on energy management systems (EMS), renewable energy resources, micro-generation, green communications architectures and frameworks, green computing and education as well as energy-aware process optimization. The contents covers a wide variety of topics and aspects including management of renewable energy systems and environmental challenges. The contents of this volume will be useful to researchers and practicing engineers working in the areas of smart grids and renewable energy generation, distribution, and management.

Trackability and Tracking of General Linear Systems Lyubomir T. Gruyitch 2018-10-31 Trackability and Tracking of General Linear Systems deals with five classes of the systems, three of which are new, begins with the definition of time together with a brief description of its crucial properties and with the principles of the physical uniqueness and continuity of physical variables. They are essential for the natural tracking control synthesis. The book presents further new results on the new compact, simple and elegant calculus that enabled the generalization of the transfer function matrix concept and of the state concept, the completion of the trackability and tracking concepts together with the proofs of the trackability and tracking criteria, as well as the natural tracking control synthesis for all five classes of the systems. Features • Crucially broadens the

state space concept and the complex domain fundamentals of the dynamical systems to the control systems. • Addresses the knowledge and ability necessary to study and design control systems that will satisfy the fundamental control goal. • Outlines new effective mathematical means for effective complete analysis and synthesis of the control systems. • Upgrades, completes and essentially generalizes the control theory beyond the existing boundaries. • Provides information necessary to create and teach advanced inherently upgraded control courses.

Radar for Indoor Monitoring Moeness Amin 2017-09-14 This book aims to capture recent advances and breakthroughs in in-home radar monitoring of human motions and activities. It addresses three key attributes of radar for in-door human monitoring, namely: motion classification including fall, detection of vital signs, and categorization of human gait for risk assessment and progression of physical impairments and disabilities. It explores recent developments in radar technology for human monitoring inside homes and residences. The reader will learn enhanced detection and classification techniques of radar signals associated with human micro- and macro-motions. Furthermore, the book includes examples using real data collected from healthy individuals, patients, and retirement communities based on the subject Doppler and range information, and using different single and multi-antenna radar system configurations. Results are also presented using modeled data based on biomechanics and kinematics. Indoor monitoring is further demonstrated using alternative technologies of infrared sensors and RF signals of opportunities.

Nonlinear Systems Tracking Lyubomir T. Gruyitch 2018-09-03 Tracking is the goal of control of any object, plant, process, or vehicle. From vehicles and missiles to power plants, tracking is essential to guarantee high-quality behavior. Nonlinear Systems Tracking establishes the tracking theory, trackability theory, and tracking control synthesis for time-varying nonlinear plants and their control systems as parts of control theory. Treating general dynamical and control systems, including subclasses of input-output and state-space nonlinear systems, the book: Describes the crucial tracking control concepts that comprise effective tracking control algorithms Defines the main tracking and trackability properties involved, identifying properties both perfect and imperfect Details the corresponding conditions needed for the controlled plant to exhibit each property Discusses various algorithms for tracking control synthesis, attacking the tracking control synthesis problems themselves Depicts the effective synthesis of the tracking control, under the action of which, the plant behavior satisfies all the imposed tracking requirements resulting from its purpose With clarity and precision, Nonlinear Systems Tracking provides original coverage, presenting discovery and proofs of new tracking criteria and control algorithms. Thus, the book creates new directions for research in control theory, enabling fruitful new control engineering applications.

Applications of Evolutionary Computing Franz Rothlauf 2005-03-23 This book constitutes the refereed joint proceedings of six workshops on evolutionary computing, EvoWorkshops 2005, held in Lausanne, Switzerland in March/April 2005. The 56 revised full papers presented were carefully reviewed and selected from a total of 143 submissions. In accordance with the six workshops covered, the papers are organized in topical sections on evolutionary bioinformatics; evolutionary computing in communications, networks, and connected systems; hardware optimization techniques; evolutionary computation in image analysis and signal processing; evolutionary music and art; and evolutionary algorithms in stochastic and dynamic environments.

Introduction to RF Equipment and System Design Pekka Eskelinen 2004 An excellent resource for engineers and technicians alike, this practical design guide offers a comprehensive and easy-to-understand overview of the most important aspects and components of radio frequency equipment and systems. The book applies theoretical fundamentals to real-world issues, heavily relying on examples from recent design projects. Key discussions include system design schemes, circuits and components for system evaluations and design, RF measurement instrumentation, antennas and associated hardware, and guidelines for purchasing test equipment. The book also serves as a valuable on-the-job training resources for sales engineers and a graduate-level text for courses in this area.

Modern Systems Analysis And Design Hoffer 2013

Introduction to Electro-optical Imaging and Tracking Systems Khalil Seyrafi 1993 For those involved with the design and analysis of electro-optical systems, the book outlines current and future ground, air and spacebourne applications of electro-optical systems. It describes their performance requirements and practical methods of

achieving design objectives.

Handbook of Ultra-Wideband Short-Range Sensing J rgen Sachs 2013-01-15 Ranging from the theoretical basis of UWB sensors via implementation issues to applications, this much-needed book bridges the gap between designers and appliers working in civil engineering, biotechnology, medical engineering, robotic, mechanical engineering, safety and homeland security. From the contents: * History * Signal and systems in time and frequency domain * Propagation of electromagnetic waves (in frequency and time domain) * UWB-Principles * UWB-antennas and applicators * Data processing * Applications

System Engineering Analysis, Design, and Development Charles S. Wasson 2015-11-16 Praise for the first edition: "This excellent text will be useful to everysystem engineer (SE) regardless of the domain. It covers ALLrelevant SE material and does so in a very clear, methodicalfashion. The breadth and depth of the author's presentation ofSE principles and practices is outstanding." –Philip Allen This textbook presents a comprehensive, step-by-step guide toSystem Engineering analysis, design, and development via anintegrated set of concepts, principles, practices, andmethodologies. The methods presented in this text apply to any typeof human system -- small, medium, and large organizational systemsand system development projects delivering engineered systems orservices across multiple business sectors such as medical,transportation, financial, educational, governmental, aerospace anddefense, utilities, political, and charity, among others. Provides a common focal point for "bridgingthe gap" between and unifying System Users, System Acquirers,multi-discipline System Engineering, and Project, Functional, andExecutive Management education, knowledge, and decision-making fordeveloping systems, products, or services Each chapter provides definitions of key terms,guiding principles, examples, author's notes, real-worldexamples, and exercises, which highlight and reinforce key SE&Dconcepts and practices Addresses concepts employed in Model-BasedSystems Engineering (MBSE), Model-Driven Design (MDD), UnifiedModeling Language (UMLTM) / Systems Modeling Language(SysMLTM), and Agile/Spiral/V-Model Development such asuser needs, stories, and use cases analysis; specificationdevelopment; system architecture development; User-Centric SystemDesign (UCSD); interface definition & control; systemintegration & test; and Verification & Validation(V&V) Highlights/introduces a new 21st Century SystemsEngineering & Development (SE&D) paradigm that is easy tounderstand and implement. Provides practices that are critical stagingpoints for technical decision making such as Technical StrategyDevelopment; Life Cycle requirements; Phases, Modes, & States;SE Process; Requirements Derivation; System ArchitectureDevelopment, User-Centric System Design (UCSD); EngineeringStandards, Coordinate Systems, and Conventions; et al. Thoroughly illustrated, with end-of-chapter exercises andnumerous case studies and examples, Systems EngineeringAnalysis, Design, and Development, Second Edition is a primarytextbook for multi-discipline, engineering, system analysis, andproject management undergraduate/graduate level students and avaluable reference for professionals.

Modern Radar System Analysis David Knox Barton 1988 This book presents the basic principles, analyses, design formulas, and characteristics of various fin-line configurations. You'll find summaries of hundreds of rigorous formulas as well as approximate closed-form expressions, which can be readily programmed to generate design data for any structure. Discover millimeter-wave integrated circuits and components realized using the various fin-line techniques presented in the text, including directional couplers, power dividers, attenuators, detectors, modulators, and oscillators. An Artech House bestseller!

Tracking and Data Fusion Yaakov Bar-Shalom 2011

Fundamentals of Object Tracking Sudha Challa 2011-07-28 Introduces object tracking algorithms from a unified, recursive Bayesian perspective, along with performance bounds and illustrative examples.

Bayesian Multiple Target Tracking, Second Edition Lawrence D. Stone 2013-12-01 This second edition has undergone substantial revision from the 1999 first edition, recognizing that a lot has changed in the multiple target tracking field. One of the most dramatic changes is in the widespread use of particle filters to implement nonlinear, non-Gaussian Bayesian trackers. This book views multiple target tracking as a Bayesian inference problem. Within this framework it develops the theory of single target tracking, multiple target tracking, and likelihood ratio detection and tracking. In addition to providing a detailed description of a basic particle filter that implements the Bayesian single target recursion, this resource provides numerous examples that involve the use of particle filters. With these examples illustrating the developed concepts, algorithms, and approaches -- the

book helps radar engineers develop tracking solutions when observations are non-linear functions of target state, when the target state distributions or measurement error distributions are not Gaussian, in low data rate and low signal to noise ratio situations, and when notions of contact and association are merged or unresolved among more than one target.

Radar System Analysis and Modeling David K. Barton 2004-10-01 A thorough update to the Artech House classic Modern Radar Systems Analysis, this reference is a comprehensive and cohesive introduction to radar systems design and performance estimation. It offers you the knowledge you need to specify, evaluate, or apply radar technology in civilian or military systems. The book presents accurate detection range equations that let you realistically estimate radar performance in a variety of practical situations. With its clear, easy-to-understand language, you quickly learn the tradeoffs between choice of wavelength and radar performance and see the inherent advantages and limitations associated with each radar band. You find modeling procedures to help you analyze enemy systems or evaluate radar integrated into new weapon systems. The book covers ECM and ECCM for both surveillance and tracking to help you estimate the effects of active and passive ECM, select hardware/software for reconnaissance or jamming, and plan the operation of EW systems. As radar systems evolve, this book provides the equations needed to calculate and evaluate the performance of the latest advances in radar technology.

Principles of Modern Radar Missile Seekers Evgeny Markin 2022-02-28 This book gives you an in-depth look into the critical function of interference shielding for onboard radar of anti-aircraft missile systems. Intended for radar engineers and technicians specializing in anti-aircraft defense, the book reviews today's military and geo-political threats, helps you understand the functional needs of the various radar and anti-missile systems to meet those threats, and synthesizes considerations for devising practical and effective protection against interferences that affect the homing heads of anti-aircraft guided missiles. Three problematic interferences are presented and discussed in detail: polarization interference; interference to the sidelobe of onboard antennas; and interference from two points in space, including interference reflected from the earth (water) surface. The book covers the basic principles of radiolocation, including monopulse radars, and gives insight into the fundamental functional units of anti-aircraft missiles and surface-to-air missile systems. The book presents guidance methods, systems of direction finding, problems on firing over the horizon, and questions of accuracy and resolution – all important for better addressing solutions of interference shielding. You will learn how to estimate the stability of target auto-tracking under conditions of cited interferences, and better assess existing limitations on firing over the horizon by a long-range antiaircraft system, as well as hypersonic targets and satellites. This is a unique and valuable resource for engineers and technicians who are involved in the design and development of anti-aircraft guided missile systems, with special emphasis on interference immunity and protection. It can also be used as a textbook in advanced radar technology coursework and seminars.

Target Type Tracking with Di? erent Fusion Rules: A Comparative Analysis Dezert We analyze the behavior of several combinational rules for temporal/sequential attribute data fusion for target type estimation. Our comparative analysis is based on: Dempster's fusion rule, Proportional Con? ict Redistribution rule no. 5 (PCR5), Symmetric Adaptive Combination (SAC) rule and a new fusion rule, based on fuzzy T-conorm and T-norm operators (TCN).

Vision, Modeling, and Visualization 2008 Oliver Deussen 2008

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.

Design, Analysis and Applications of Renewable Energy Systems Ahmad Taher Azar 2021-09-09 Design, Analysis and Applications of Renewable Energy Systems covers recent advancements in the study of renewable energy control systems by bringing together diverse scientific breakthroughs on the modeling, control and optimization of renewable energy systems as conveyed by leading energy systems engineering researchers. The book focuses on present novel solutions for many problems in the field, covering modeling, control theorems and the optimization techniques that will help solve many scientific issues for researchers. Multidisciplinary applications are also discussed, along with their fundamentals, modeling, analysis, design, realization and experimental results. This book fills the gaps between different interdisciplinary applications, ranging from mathematical concepts, modeling, and analysis, up to the realization and experimental work. Presents some of the latest innovative approaches to renewable energy systems from the point-of-view of dynamic modeling, system analysis, optimization, control and circuit design Focuses on advances related to optimization techniques for renewable energy and forecasting using machine learning methods Includes new circuits and systems, helping researchers solve many nonlinear problems

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

Underwater Acoustics Richard P. Hodges 2011-06-28 Offering complete and comprehensive coverage of modern sonar spectrum system analysis, Underwater Acoustics: Analysis, Design and Performance of Sonar provides a state-of-the-art introduction to the subject and has been carefully structured to offer a much-needed update to the classic text by Urick. Expanded to included computational approaches to the topic, this book treads the line between the highly theoretical and mathematical texts and the more populist, non-mathematical books that characterize the existing literature in the field. The author compares and contrasts different techniques for sonar design, analysis and performance prediction and includes key experimental and theoretical results, pointing the reader towards further detail with extensive references. Practitioners in the field of sonar design, analysis and performance prediction as well as graduate students and researchers will appreciate this new reference as an invaluable and timely contribution to the field. Chapters include the sonar equation, radiated, self and ambient noise, active sonar sources, transmission loss, reverberation, transducers, active target strength, statistical detection theory, false alarms, contacts and targets, variability and uncertainty, modelling detections and tactical decision aids, cumulative probability of detection, tracking target motion analysis and localization, and design and evaluation of sonars

Multiple-target Tracking with Radar Applications Samuel S. Blackman 1986

Radar Systems Analysis and Design Using MATLAB Bassem R. Mahafza 2016-04-19 Developed from the author's graduate-level courses, the first edition of this book filled the need for a comprehensive, self-contained, and hands-on treatment of radar systems analysis and design. It quickly became a bestseller and was widely adopted by many professors. The second edition built on this successful format by rearranging and updating

Estimation with Applications to Tracking and Navigation Yaakov Bar-Shalom 2004-04-05 Expert coverage of the design and implementation of stateestimation algorithms for tracking and navigation Estimation with Applications to Tracking and Navigationtreats the estimation of various quantities from inherentlyinaccurate remote observations. It explains state estimator designusing a balanced combination of linear systems, probability, andstatistics. The authors provide a review of the necessary backgroundmathematical techniques and offer an overview of the basic conceptsin estimation. They then provide detailed treatments of all themajor issues in estimation with a focus on applying thesetechniques to real systems. Other features include: Problems that apply theoretical material to real-worldapplications In-depth coverage of the Interacting Multiple Model (IMM)estimator Companion DynaEst(TM) software for MATLAB(TM) implementation ofKalman filters and IMM estimators Design guidelines for tracking filters Suitable for graduate engineering students and engineers workingin remote sensors and tracking, Estimation with Applications toTracking and Navigation provides expert coverage of thisimportant area.

Advances in Systems Science Jerzy Swi? tek 2013-08-13 The International Conference on Systems Science 2013 (ICSS 2013) was the 18th event of the series of international scientific conferences for researchers and practitioners in the fields of systems science and systems engineering. The conference took place in Wroclaw, Poland during September 10-12, 2013 and was organized by Wroclaw University of Technology and co-organized by: Committee of Automatics and Robotics of Polish Academy of Sciences, Committee of Computer Science of Polish Academy of Sciences and Polish Section of IEEE. The papers included in the proceedings cover the following topics: Control Theory, Databases and Data Mining, Image and Signal Processing, Machine Learning, Modeling and Simulation, Operational Research, Service Science, Time series and System Identification. The accepted and presented papers highlight new trends and challenges in systems science and systems engineering.

Designing Data-Intensive Applications Martin Kleppmann 2017-03-16 Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL datastores, stream or batch processors, and message brokers. What are the right choices for your application? How do you make sense of all these buzzwords? In this practical and comprehensive guide, author Martin Kleppmann helps you navigate this diverse landscape by examining the pros and cons of various technologies for processing and storing data. Software keeps changing, but the fundamental principles remain the same. With this book, software engineers and architects will learn how to apply those ideas in practice, and how to make full use of data in modern applications. Peer under the hood of the systems you already use, and learn how to use and operate them more effectively Make informed decisions by identifying the strengths and weaknesses of different tools Navigate the trade-offs around consistency, scalability, fault tolerance, and complexity Understand the distributed systems research upon which modern databases are built Peek behind the scenes of major online services, and learn from their architectures

Basic Radar Tracking Mervin C. Budge 2018-10-31 Detailed closed-loop bandwidth and transient response approach is a subject rarely found in current literature. This innovative resource offers practical explanations of closed-loop radar tracking techniques in range, Doppler and angle tracking. To address analog closed loop trackers, a review of basic control theory and modeling is included. In addition, control theory, radar receivers, signal processors, and circuitry and algorithms necessary to form the signals needed in a tracker are presented. Digital trackers and multiple target tracking are also covered, focusing on g-h and g-h-k filters. Readers learn techniques for modeling digital, closed-loop trackers. The radar circuitry/block diagrams necessary for range, Doppler and angle tracking are presented and described, with examples and simulations included. Factors such as noise and Swerling type fluctuations are taken into account. In addition to numerous worked examples, this approachable reference includes MATLAB® code associated with analysis, simulations and figures. The book contains solutions to practical problems, making it useful for both novice and advanced radar practitioners. Software will be available for download on this page.

Springer Handbook of Robotics Bruno Siciliano 2008-05-20 With the science of robotics undergoing a major transformation just now, Springer's new, authoritative handbook on the subject couldn't have come at a better time. Having broken free from its origins in industry, robotics has been rapidly expanding into the challenging terrain of unstructured environments. Unlike other handbooks that focus on industrial applications, the Springer Handbook of Robotics incorporates these new developments. Just like all Springer Handbooks, it is utterly

comprehensive, edited by internationally renowned experts, and replete with contributions from leading researchers from around the world. The handbook is an ideal resource for robotics experts but also for people new to this expanding field.

Unmanned Aircraft Systems Ella Atkins 2017-01-17 Covering the design, development, operation and mission profiles of unmanned aircraft systems, this single, comprehensive volume forms a complete, stand-alone reference on the topic. The volume integrates with the online Wiley Encyclopedia of Aerospace Engineering, providing many new and updated articles for existing subscribers to that work.

Handbook of Radar Signal Analysis Bassem R. Mahafza 2021-08-17 This new handbook on radar signal analysis adopts a deliberate and systematic approach. It uses a clear and consistent level of delivery while maintaining strong and easy-to-follow mathematical details. The emphasis of this book is on radar signal types and their relevant signal processing and not on radar systems hardware or components. This handbook serves as a valuable reference to a wide range of audience. More specifically, college-level students, practicing radar engineers, as well as casual readers of the subject are the intended target audience of the first few chapters of this book. As the book chapters progress, these grow in complexity and specificity. Accordingly, later chapters are intended for practicing engineers, graduate college students, and advanced readers. Finally, the last few chapters contain several special topics on radar systems that are both educational and scientifically entertaining to all readers. The presentation of topics in this handbook takes the reader on a scientific journey whose major landmarks comprise the different radar subsystems and components. In this context, the chapters follow the radar signal along this journey from its birth to the end of its life. Along the way, the different relevant radar subsystems are analyzed and discussed in great detail. The chapter contributors of this new handbook comprise experienced academia members and practicing radar engineers. Their combined years of academic and real-world experiences are in excess of 175. Together, they bring a unique, easy-to-follow mix of mathematical and practical presentations of the topics discussed in this book. See the "Chapter Contributors" section to learn more about these individuals.