Stepped Frequency Radar Sensors Theory Analysis And Design Springerbriefs In Electrical And Computer Engineering

Thank you extremely much for downloading **stepped frequency radar sensors theory analysis and design springerbriefs in electrical and computer engineering**.Most likely you have knowledge that, people have look numerous time for their favorite books next this stepped frequency radar sensors theory analysis and design springerbriefs in electrical and computer engineering, but end occurring in harmful downloads.

Rather than enjoying a fine book in the same way as a cup of coffee in the afternoon, on the other hand they juggled with some harmful virus inside their computer. **stepped frequency radar sensors theory analysis and design springerbriefs in electrical and computer engineering** is clear in our digital library an online right of entry to it is set as public correspondingly you can download it instantly. Our digital library saves in merged countries, allowing you to acquire the most less latency time to download any of our books later this one. Merely said, the stepped frequency radar sensors theory analysis and design springerbriefs in electrical and computer engineering is universally compatible taking into consideration any devices to read.

Stepped Frequency Radar Sensors Theory

This book presents the theory, analysis and design of microwave stepped-frequency radar sensors. Stepped-frequency radar sensors are attractive for various sensing

applications that require fine resolution. The book consists of five chapters. The first chapter describes the fundamentals of radar

Stepped-Frequency Radar Sensors - Theory, Analysis and ...
This book presents the theory, analysis and design of microwave stepped-frequency radar sensors. Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of five chapters. The first chapter describes the fundamentals of radar sensors including applications followed by a review of ultra-wideband pulsed, frequency-modulated continuous-wave (FMCW), and stepped-frequency radar sensors.

Stepped-Frequency Radar Sensors | SpringerLink
This book presents the theory, analysis and design of microwave stepped-frequency radar sensors. Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of five chapters.

Stepped-frequency radar sensors : theory, analysis and ...
Finally, a summary and conclusion is providedAuthors: Nguyen, Cam, Park, Joongsuk This book presents the theory, analysis and design of microwave stepped-frequency radar sensors. Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of five chapters.

Stepped-frequency Radar Sensors: Theory, Analysis And ...
This book presents the theory, analysis and design of microwave stepped-frequency radar sensors. Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of

five chapters. The first chapter describes the fundamentals of radar sensors including applications followed by a review of ultra-wideband pulsed, frequency-modulated ...

Stepped-Frequency Radar Sensors - Les-mer.no
Download Stepped Frequency Radar Sensors Theory Analysis And Design This download stepped frequency may search format of a SPECIAL OFFER neutron! respiratory Offers on this viewing - View work's living and specific site issues n't! new people scholarly as different schoolchildren may sort to divorce risen not from the sex's debt. weak unknowable can create from the detailed.

Download Stepped Frequency Radar Sensors Theory Analysis ...
Description About Book Stepped-Frequency Radar Sensors – Theory, Analysis And Design From Amazon This book presents the theory, analysis and design of microwave stepped-frequency radar sensors. Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution.

?????? ???? Stepped-Frequency Radar Sensors - Theory ...
Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of five chapters. The first chapter describes the fundamentals of radar sensors including applications followed by a review of ultra-wideband pulsed, frequency-modulated continuous-wave (FMCW), and stepped-frequency radar sensors.

Stepped-Frequency Radar Sensors: Theory, Analysis and ...
Find many great new & used options and get the best deals for Stepped-Frequency Radar Sensors: Theory, Analysis and

Design: 2016 by Joongsuk Park, Cam Nguyen (Paperback, 2015) at the best online prices at eBay!

Stepped-Frequency Radar Sensors: Theory, Analysis and ...
Stepped-Frequency Radar Sensors : Theory, Analysis and Design, Paperback by Nguyen, Cam; Park, Joongsuk, ISBN 3319122703, ISBN-13 9783319122700, Like New Used, Free shipping This book presents the theory, analysis and design of microwave stepped-frequency radar sensors.

Stepped-Frequency Radar Sensors : Theory, Analysis and ...
Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of five chapters. The first chapter describes the fundamentals of radar sensors including applications followed by a review of ultra-wideband pulsed, frequency-modulated continuous-wave (FMCW), and stepped-frequency radar sensors.

Stepped-Frequency Radar Sensors - Nguyen, Cam/ Park ...
This book presents the theory, analysis and design of microwave stepped-frequency radar sensors. Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of five chapters. The first chapter describes the fundamentals of radar sensors including applications followed by a review of ultra-wideband pulsed, frequency-modulated continuous-wave (FMCW), and stepped-frequency radar sensors.

Stepped-Frequency Radar Sensors eBook by Cam Nguyen ...
Wideband distributed coherent aperture radar based on stepped frequency signal: theory and experimental results. Author(s): Tao Zeng; Pilei Yin; Quanhua Liu DOI: 10.1049/iet-rsn.2015.0221 For access to this article, please select a

purchase option:

Wideband distributed coherent aperture radar based on ...

Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of five chapters. The first chapter describes the fundamentals of radar sensors including applications followed by a review of ultra-wideband pulsed, frequency-modulated continuous-wave (FMCW), and stepped-frequency radar sensors.

Stepped-Frequency Radar Sensors – Books Pics – Download ...

The Spectrally Agile Frequency-Incrementing Reconfigurable radar is a vehicle-mounted, forward-looking ground-penetrating radar system designed to detect buried or hidden explosive hazards. It was developed by the U.S. Army Research Laboratory in 2016 as part of a long generation of ultra-wideband and synthetic aperture radar systems created to combat buried landmines and IEDs. Past iterations include the railSAR, the boomSAR, and the SIRE radar.

This book presents the theory, analysis and design of microwave stepped-frequency radar sensors. Stepped-frequency radar sensors are attractive for various sensing applications that require fine resolution. The book consists of five chapters. The first chapter describes the fundamentals of radar sensors including applications followed by a review of ultra-wideband pulsed, frequency-modulated continuous-wave (FMCW), and stepped-frequency radar sensors. The second chapter discusses a general analysis of radar sensors including wave propagation in media and scattering on targets, as well as the radar equation. The third chapter

addresses the analysis of stepped-frequency radar sensors including their principles and design parameters. Chapter 4 presents the development of two stepped-frequency radar sensors at microwave and millimeter-wave frequencies based on microwave integrated circuits (MICs), microwave monolithic integrated circuits (MMICs) and printed-circuit antennas, and discusses their signal processing. Chapter 5 provides the electrical characterization and test results of the developed microwave and millimeter-wave stepped-frequency radar sensors. Finally, a summary and conclusion is provided.

In this dissertation, we have studied totally eight topics which are focused on but not limited to radar sensor networks (RSN) from a signal processing perspective. We propose the definitions of ZCZ/LCZ (Zero Correlation Zone/Low Correlation Zone) sequence-pair sets, provided three methods to construct optimized optimized punctured LCZ/ZCZ sequence-pair sets and study their properties in chapter 2 and 3. We further investigate the waveform design problem for radar system, radar sensor network, sonar sensor network and MIMO radar system from chapter 4 to chapter 7. In addition, we study radar sensor network from the view of information theory in chapter 8. We also study compressive sensing and apply it to RSN to further investigate the system performance in chapter 9 and chapter 10. In chapter 11, we briefly conclude our work in this dissertation. The main innovation works of this dissertation are as following. We propose the LCZ/ZCZ Sequence-pair Sets that have ideal autocorrelation sidelobes and cross correlation values during LCZ/ZCZ. We also provide three methods to construct the Optimized Punctured LCZ/ZCZ Sequence-pair Sets which is a specific case of the LCZ/ZCZ Sequence-pair Sets. We not only theoretically prove that the sequence-pair sets constructed by our methods satisfy the definitions of the

Optimized Punctured LCZ/ZCZ Sequence-pair sets, but also provide examples for each method and analyze properties of the Optimized Punctured LCZ/ZCZ Sequence-pair sets to help further investigating our proposed codes. The main purpose of pulse compression is to raise the signal to maximum sidelobe (signal-to-sidelobe) ratio to improve the target detection and range resolution abilities of the system. We apply the Optimized Punctured Binary Sequence-pair to the Radar system as the phase coded waveforms which is a kind of pulse compression codes. Comparing with the Barker and P4 codes of corresponding length, the Radar system within the Optimized Punctured Binary Sequence-pair could clearly improve the detection performances. Since multiple radar sensors can be combined to form a multi radar system to overcome performance degradation of single radar along with waveform optimization, we theoretically study RSN design using phase coded waveforms. We apply our newly proposed codes to RSN and analyze the detection performance of the system. We also apply the proposed ternary codes to the Sonar Sensor Network (SSN) as pulse compression codes for narrowband pulse signals and simulate the target detection performance of the system. We provide two MIMO radar systems using our proposed codes as orthogonal pulse compression codes to study the direction finding performance of the MIMO radar systems. We theoretically analyze the two MIMO radar system models and simulate the direction finding performance of the system. We also studied the RSN from the view of information theory. We investigate the use of information theory to design waveforms for the measurement of extended radar targets in RSN. We optimized the estimation waveforms that maximize the mutual information between a target ensemble and the received signal within additive Gaussian noise so that characteristics of the target could be well recognized. Finally, we provide and

analyze a CS-SVD method to simplify the signal recovery algorithm and introduce CS to RSN using pulse compression technique. Our idea is to employ a set of Stepped-Frequency (SF) waveforms as pulse compression codes for transmit sensors, and to use the same SF waveforms as the sparse matrix to compress the signal in the receiving sensor. We obtain that the signal samples along the time domain could be largely compressed so that they could be perfectly recovered by a small number of measurements. We develop a Maximum Likelihood (ML) Algorithm for Radar Cross Section (RCS) parameter estimation and provide the Cramer-Rao lower bound (CRLB) to validate the theoretical result.

Radar Expert, Esteemed Author Gregory L. Charvat on CNN and CBSAuthor Gregory L. Charvat appeared on CNN on March 17, 2014 to discuss whether Malaysia Airlines Flight 370 might have literally flown below the radar. He appeared again on CNN on March 20, 2014 to explain the basics of radar, and he explored the hope and limitations of the technology i

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.

Theory, Analysis and Design of RF Interferometric Sensors presents the theory, analysis and design of RF interferometric sensors. RF interferometric sensors are attractive for various sensing applications that require every fine resolution and accuracy as well as fast speed. The book also presents two millimeter-wave interferometric sensors realized using RF integrated circuits. The developed millimeter-wave homodyne sensor shows sub-millimeter resolution in the order of 0.05 mm without correction for the non-linear phase response of the sensor's quadrature mixer. The designed millimeter-wave double-channel homodyne sensor provides a resolution of only 0.01 mm, or 1/840th of the operating wavelength, and can inherently suppress the non-linearity of the sensor's quadrature mixer. The experimental results of displacement and velocity measurement are presented as a way to demonstrate the sensing ability of the RF interferometry and to illustrate its many possible applications in sensing. The book is succinct, yet the material is very much self-contained, enabling readers with an undergraduate background in electrical engineering or physics with some experiences or graduate courses in RF circuits to understand easily.

This book presents the theory, analysis, and design of ultra-wideband (UWB) radar and sensor systems (in short, UWB systems) and their components. UWB systems find numerous applications in the military, security, civilian, commercial and

medicine fields. This book addresses five main topics of UWB systems: System Analysis, Transmitter Design, Receiver Design, Antenna Design and System Integration and Test. The developments of a practical UWB system and its components using microwave integrated circuits, as well as various measurements, are included in detail to demonstrate the theory, analysis and design technique. Essentially, this book will enable the reader to design their own UWB systems and components. In the System Analysis chapter, the UWB principle of operation as well as the power budget analysis and range resolution analysis are presented. In the UWB Transmitter Design chapter, the design, fabrication and measurement of impulse and monocycle pulse generators are covered. The UWB Receiver Design chapter addresses the design and measurement of the strobe pulse generator, sampling mixer, low-noise amplifier and synchronous sampling receiver. Next, the UWB Antenna Design chapter details the design and measurement of to two UWB antennas: the microstrip quasi-horn antenna and the UWB uniplanar antenna. The System Integration and Test chapter covers the transmission-reception test, signal processing, system integration, and evaluation of the UWB sensor. The final chapter provides a summary and conclusion of the work.

In this comprehensive work, experts in the field detail recent advances in medical and biological microwave sensors and systems, with chapters on topics such as implantable sensors, wearable microwave tags, and UWB technology. Each chapter explores the theory behind the technology, as well as its design and implementation. This is supported by practical examples and details of experimental results, along with discussion of system design, design trade-offs, and possible constraints and manufacturing issues. Applications described include intracranial pressure monitoring, vital signs

monitoring, and non-invasive molecular and cellular investigations. Presenting new research and advances in the field, and focusing on the state of the art in medical and biological microwave sensors, this work is an invaluable resource for enthusiastic researchers and practicing engineers in the fields of electrical engineering, biomedical engineering, and medical physics.

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

A self-contained approach to DSP techniques and applications in radar imaging The processing of radar images, in general, consists of three major fields: Digital Signal Processing (DSP); antenna and radar operation; and algorithms used to process the radar images. This book brings together material from these different areas to allow readers to gain a thorough understanding of how radar images are processed. The book is divided into three main parts and covers: * DSP principles and signal characteristics in both analog and digital domains, advanced signal sampling, and interpolation techniques * Antenna theory (Maxwell equation, radiation field from dipole, and linear phased array), radar fundamentals, radar modulation, and target-detection techniques (continuous wave, pulsed Linear Frequency Modulation, and stepped Frequency Modulation) *

Properties of radar images, algorithms used for radar image processing, simulation examples, and results of satellite image files processed by Range-Doppler and Stolt interpolation algorithms The book fully utilizes the computing and graphical capability of MATLAB? to display the signals at various processing stages in 3D and/or cross-sectional views. Additionally, the text is complemented with flowcharts and system block diagrams to aid in readers' comprehension. Digital Signal Processing Techniques and Applications in Radar Image Processing serves as an ideal textbook for graduate students and practicing engineers who wish to gain firsthand experience in applying DSP principles and technologies to radar imaging.

Offering radar-related software for the analysis and design of radar waveform and signal processing, Radar Signal Analysis and Processing Using MATLAB® provides a comprehensive source of theoretical and practical information on radar signals, signal analysis, and radar signal processing with companion MATLAB® code. After an overview of radar systems operation and design, the book reviews elements of signal theory relevant to radar detection and radar signal processing, along with random variables and processes. The author then presents the unique characteristic of the matched filter and develops a general formula for the output of the matched filter that is valid for any waveform. He analyzes several analog waveforms, including the linear frequency modulation pulse and stepped frequency waveforms, as well as unmodulated pulse-train, binary, polyphase, and frequency codes. The book explores radar target detection and pulse integration, emphasizing the constant false alarm rate. It also covers the stretch processor, the moving target indicator, radar Doppler processing, beamforming, and adaptive array processing. Using configurable MATLAB code, this book

demonstrates how to apply signal processing to radar applications. It includes many examples and problems to illustrate the practical application of the theory.