

Cognitive Radio Papers With Matlab Code

Globally considered as one of the key technologies in the field of wireless communications, cognitive radio has the capability to solve the issues related to radio spectrum scarcity with the help of dynamic spectrum allocation. It discusses topics including software defined radio architecture, linear predictive coding, variance fractal compression, optimal Codec design for mobile communication system, digital modulation techniques, spectrum sensing in cognitive radio networks and orthogonal frequency division multiplexing in depth. The text is primarily written for senior undergraduate and graduate students, in learning experimental techniques, designing and implementing models in the field wireless communication.

Cognitive Radio Communications and Networks gives comprehensive and balanced coverage of the principles of cognitive radio communications, cognitive networks, and details of their implementation, including the latest developments in the standards and spectrum policy. Case studies, end-of-chapter questions, and descriptions of various platforms and test beds, together with sample code, give hands-on knowledge of how cognitive radio systems can be implemented in practice. Extensive treatment is given to several standards, including IEEE 802.22 for TV White Spaces and IEEE SCC41

Written by leading people in the field, both at universities and major industrial research laboratories, this tutorial text gives communications engineers, R&D engineers, researchers, undergraduate and post graduate students a complete reference on the application of wireless communications and network theory for the design and implementation of cognitive radio systems and networks Each chapter is written by internationally renowned experts, giving complete and balanced treatment of the fundamentals of both cognitive radio communications and cognitive networks, together with implementation details Extensive treatment of the latest standards and spectrum policy developments enables the development of compliant cognitive systems Strong practical orientation – through case studies and descriptions of cognitive radio platforms and testbeds – shows how real world cognitive radio systems and network architectures have been built

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Detailing the advantages and limitations of multi-carrier communication, this book proposes possible solutions for these limitations. Multi-Carrier Communication Systems with Examples in MATLAB®: A New Perspective addresses the two primary drawbacks of orthogonal frequency division multiplexing (OFDM) communication systems: the high sensitivity to carrier frequency offsets and phase noise, and the high peak-to-average power ratio (PAPR) of the transmitted signals. Presenting a new interleaving scheme for multicarrier communication, the book starts with a detailed overview of multi-carrier

systems such as OFDM, multi-carrier code division multiple access (MC-CDMA), and single-carrier frequency division multiple access (SC-FDMA) systems. From there, it proposes a new way to deal with the frequency-selective fading channel: the single-carrier with frequency domain equalization (SC-FDE) scheme. The second part of the book examines the performance of the continuous phase modulation (CPM)-based OFDM (CPM-OFDM) system. It proposes a CPM-based single-carrier frequency domain equalization (CPM-SC-FDE) structure for broadband wireless communication systems. In the third part of the book, the author proposes a chaotic interleaving scheme for both CPM-OFDM and the CPM-SC-FDE systems. A comparison between the proposed chaotic interleaving and the conventional block interleaving is also performed in this part. The final part of the book presents efficient image transmission techniques over multi-carrier systems such as OFDM, MC-CDMA, and SC-FDMA. It details a new approach for efficient image transmission over OFDM and MC-CDMA systems using chaotic interleaving that transmits images over wireless channels efficiently. The book studies the performance of discrete cosine transform-based single-carrier frequency division multiple access (DCT-SC-FDMA) with image transmission. It also proposes a CPM-based DCT-SC-FDMA structure for efficient image transmission. The book includes MATLAB® simulations along with MATLAB code so you can practice carrying out your own extensive simulations.

The book is a collection of high-quality peer-reviewed research papers presented in International Conference on Soft Computing Systems (ICSCS 2015) held at Noorul Islam Centre for Higher Education, Chennai, India. These research papers provide the latest developments in the emerging areas of Soft Computing in Engineering and Technology. The book is organized in two volumes and discusses a wide variety of industrial, engineering and scientific applications of the emerging techniques. It presents invited papers from the inventors/originators of new applications and advanced technologies.

Cognitive networks can be crucial for the evolution of future communication systems; however, current trends have indicated major movement in other relevant fields towards the integration of different techniques for the realization of self-aware and self-adaptive communication systems. Evolution of Cognitive Networks and Self-Adaptive Communication Systems overviews innovative technologies combined for the formation of self-aware, self-adaptive, and self-organizing networks. By aiming to inform the research community and the related industry of solutions for cognitive networks, this book is essential for researchers, instructors, and professionals interested in clarifying the latest trends resulting in a unified realization for cognitive networking and communication systems.

Detailing a systems approach, Optical Wireless Communications: System and Channel Modelling with MATLAB®, is a self-contained volume that concisely and comprehensively covers the theory and technology of optical wireless communications systems (OWC) in a way that is suitable for undergraduate and graduate-level students, as well as researchers and professional engineers. Incorporating MATLAB® throughout, the authors highlight past and current research activities to illustrate optical sources, transmitters, detectors, receivers, and other devices used in optical wireless communications. They also discuss both indoor and outdoor environments, discussing how different factors—including various channel models—affect system performance and

mitigation techniques. In addition, this book broadly covers crucial aspects of OWC systems: Fundamental principles of OWC Devices and systems Modulation techniques and schemes (including polarization shift keying) Channel models and system performance analysis Emerging visible light communications Terrestrial free space optics communication Use of infrared in indoor OWC One entire chapter explores the emerging field of visible light communications, and others describe techniques for using theoretical analysis and simulation to mitigate channel impact on system performance. Additional topics include wavelet denoising, artificial neural networks, and spatial diversity. Content also covers different challenges encountered in OWC, as well as outlining possible solutions and current research trends. A major attraction of the book is the presentation of MATLAB simulations and codes, which enable readers to execute extensive simulations and better understand OWC in general.

This book constitutes the refereed proceedings of the First International Conference on Intelligent Technologies and Applications, INTAP 2018, held in Bahawalpur, Pakistan, in October 2018. The 68 revised full papers and 6 revised short papers presented were carefully reviewed and selected from 251 submissions. The papers of this volume are organized in topical sections on AI and health; sentiment analysis; intelligent applications; social media analytics; business intelligence; Natural Language Processing; information extraction; machine learning; smart systems; semantic web; decision support systems; image analysis; automated software engineering.

The field of visible light communication (VLC) has diverse applications to the end user including streaming audio, video, high-speed data browsing, voice over internet and online gaming. This comprehensive textbook discusses fundamental aspects, research activities and modulation techniques in the field of VLC. Visible Light Communication: A Comprehensive Theory and Applications with MATLAB® discusses topics including line of sight (LOS) propagation model, non-line of sight (NLOS) propagation model, carrier less amplitude and phase modulation, multiple-input-multiple-output (MIMO), non-linearities of optical sources, orthogonal frequency-division multiple access, non-orthogonal multiple access and single-carrier frequency-division multiple access in depth. Primarily written for senior undergraduate and graduate students in the field of electronics and communication engineering for courses on optical wireless communication and VLC, this book: Provides up-to-date literature in the field of VLC Presents MATLAB codes and simulations to help readers understand simulations Discusses applications of VLC in enabling vehicle to vehicle (V2V) communication Covers topics including radio frequency (RF) based wireless communications and VLC Presents modulation formats along with the derivations of probability of error expressions pertaining to different variants of optical OFDM

Today's wireless services have come a long way since the roll out of the conventional voice-centric cellular systems. The demand for wireless access in voice and high rate data multi-media applications has been increasing. New generation wireless communication systems are aimed at accommodating this demand through better resource management and improved transmission technologies. The interest in increasing Spectrum Access and improving Spectrum Efficiency combined with both the introduction of Software Defined Radios and the realization that machine learning can be applied to radios has created new intriguing possibilities for wireless radio researchers. This book is aimed to discuss the cognitive radio, software defined radio

(SDR), and adaptive radio concepts from several aspects. Cognitive radio and cognitive networks will be investigated from a broad aspect of wireless communication system enhancement while giving special emphasis on better spectrum utilization. Applications of cognitive radio, SDR and cognitive radio architectures, spectrum efficiency and soft spectrum usage, adaptive wireless system design, measurements and awareness of various parameters including interference temperature and geo-location information are some of the important topics that will be covered in this book. Cognitive Radio, Software Defined Radio, and Adaptive Wireless Systems is intended to be both an introductory technology survey/tutorial for beginners and an advanced mathematical overview intended for technical professionals in the communications industry, technical managers, and researchers in both academia and industry.

Cognitive Radio Oriented Wireless Networks 10th International Conference, CROWNCOM 2015, Doha, Qatar, April 21-23, 2015, Revised Selected Papers Springer

MIMO-OFDM is a key technology for next-generation cellular communications (3GPP-LTE, Mobile WiMAX, IMT-Advanced) as well as wireless LAN (IEEE 802.11a, IEEE 802.11n), wireless PAN (MB-OFDM), and broadcasting (DAB, DVB, DMB). In MIMO-OFDM Wireless Communications with MATLAB®, the authors provide a comprehensive introduction to the theory and practice of wireless channel modeling, OFDM, and MIMO, using MATLAB® programs to simulate the various techniques on MIMO-OFDM systems. One of the only books in the area dedicated to explaining simulation aspects Covers implementation to help cement the key concepts Uses materials that have been classroom-tested in numerous universities Provides the analytic solutions and practical examples with downloadable MATLAB® codes Simulation examples based on actual industry and research projects Presentation slides with key equations and figures for instructor use MIMO-OFDM Wireless Communications with MATLAB® is a key text for graduate students in wireless communications. Professionals and technicians in wireless communication fields, graduate students in signal processing, as well as senior undergraduates majoring in wireless communications will find this book a practical introduction to the MIMO-OFDM techniques. Instructor materials and MATLAB® code examples available for download at www.wiley.com/go/chomimo

This book examines signal processing techniques used in wireless communication illustrated by using the Matlab program. The author discusses these techniques as they relate to Doppler spread, Delay spread, Rayleigh and Rician channel modeling, rake receiver, diversity techniques, MIMO and OFDM based transmission techniques, and array signal processing. Related topics such as detection theory, Link budget, Multiple access techniques, spread spectrum, are also covered. • Illustrates signal processing techniques involved in wireless communication • Discusses multiple access techniques such as Frequency division multiple access, Time division multiple access, and Code division multiple access • Covers band pass modulation techniques such as Binary phase shift keying, Differential phase shift keying, Quadrature phase shift keying, Binary frequency shift keying, Minimum shift keying, and Gaussian minimum shift keying.

The updated book presents Matlab illustrations on various digital signal processing (DSP) techniques such as random process, time varying wireless system model, and detection and estimation theory used in wireless communication. The book also covers

recent wireless techniques like OFDM, massive MIMO techniques, non-orthogonal multiple access, millimeter wave MIMO, full duplex, cognitive radio, co-operating communication, unmanned aerial vehicles etc. This book is suitable for those who are doing basic and applied research in digital signal processing for wireless communication.

Cooperative Cognitive Radio Networks: The Complete Spectrum Cycle provides a solid understanding of the foundations of cognitive radio technology, from spectrum sensing, access, and handoff to routing, trading, and security. Written in a tutorial style with several illustrative examples, this comprehensive book: Gives an overview of cognitive radio systems and explains the different components of the spectrum cycle Features step-by-step analyses of the different algorithms and systems, supported by extensive computer simulations, figures, tables, and references Fulfills the need for a single source of information on all aspects of the spectrum cycle, including the physical, link, medium access, network, and application layers Offering a unifying view of the various approaches and methodologies, **Cooperative Cognitive Radio Networks: The Complete Spectrum Cycle** presents the state of the art of cognitive radio technology, addressing all phases of the spectrum access cycle.

The limitation of the radio spectrum and the rapid growth of communication applications make optimal usage of radio resources essential. Cognitive radio (CR) is an attractive research area for 4G/5G wireless communication systems, which enables unlicensed users to access the spectrum. Delivering higher spectral efficiency, supporting the higher number of users, and achieving higher coverage and throughput are the main advantages of CR-based networks compared to conventional ones. The main goal of this book is to provide highlights of current research topics in the field of CR-based systems. The book consists of six chapters in three sections focusing on primary and secondary users, spectrum sensing, spectrum sharing, CR-based IoT, emulation attack, and interference alignment.

mmWave Massive MIMO: A Paradigm for 5G is the first book of its kind to hinge together related discussions on mmWave and Massive MIMO under the umbrella of 5G networks. New networking scenarios are identified, along with fundamental design requirements for mmWave Massive MIMO networks from an architectural and practical perspective. Working towards final deployment, this book updates the research community on the current mmWave Massive MIMO roadmap, taking into account the future emerging technologies emanating from 3GPP/IEEE. The book's editors draw on their vast experience in international research on the forefront of the mmWave Massive MIMO research arena and standardization. This book aims to talk openly about the topic, and will serve as a useful reference not only for postgraduates students to learn more on this evolving field, but also as inspiration for mobile communication researchers who want to make further innovative strides in the field to mark their legacy in the 5G arena. Contains tutorials on the basics of mmWave and Massive MIMO Identifies new 5G networking scenarios, along with design requirements from an architectural and practical perspective Details the latest updates on the evolution of the mmWave Massive MIMO roadmap, considering future emerging technologies emanating from 3GPP/IEEE Includes contributions from leading experts in the field in modeling and prototype design for mmWave Massive MIMO design Presents an ideal reference that not only helps postgraduate students learn more in this evolving field, but

also inspires mobile communication researchers towards further innovation

This two-volume set (CCIS 134 and CCIS 135) constitutes the refereed proceedings of the International Conference on Intelligent Computing and Information Science, ICICIS2011, held in Chongqing, China, in January 2011. The 226 revised full papers presented in both volumes, CCIS 134 and CCIS 135, were carefully reviewed and selected from over 600 initial submissions. The papers provide the reader with a broad overview of the latest advances in the field of intelligent computing and information science.

The availability of the RTL-SDR device for less than \$20 brings software defined radio (SDR) to the home and work desktops of EE students, professional engineers and the maker community. The RTL-SDR can be used to acquire and sample RF (radio frequency) signals transmitted in the frequency range 25MHz to 1.75GHz, and the MATLAB and Simulink environment can be used to develop receivers using first principles DSP (digital signal processing) algorithms. Signals that the RTL-SDR hardware can receive include: FM radio, UHF band signals, ISM signals, GSM, 3G and LTE mobile radio, GPS and satellite signals, and any that the reader can (legally) transmit of course! In this book we introduce readers to SDR methods by viewing and analysing downconverted RF signals in the time and frequency domains, and then provide extensive DSP enabled SDR design exercises which the reader can learn from. The hands-on SDR design examples begin with simple AM and FM receivers, and move on to the more challenging aspects of PHY layer DSP, where receive filter chains, real-time channelisers, and advanced concepts such as carrier synchronisers, digital PLL designs and QPSK timing and phase synchronisers are implemented. In the book we will also show how the RTL-SDR can be used with SDR transmitters to develop complete communication systems, capable of transmitting payloads such as simple text strings, images and audio across the lab desktop.

The fast user growth in wireless communications has created significant demands for new wireless services in both the licensed and unlicensed frequency spectra. Since many spectra are not fully utilized most of the time, cognitive radio, as a form of spectrum reuse, can be an effective means to significantly boost communications resources. Since its introduction in late last century, cognitive radio has attracted wide attention from academics to industry. Despite the efforts from the research community, there are still many issues of applying it in practice. This book is an attempt to cover some of the open issues across the area and introduce some insight to many of the problems. It contains thirteen chapters written by experts across the globe covering topics including spectrum sensing fundamental, cooperative sensing, spectrum management, and interaction among users.

This book constitutes the thoroughly refereed post-conference proceedings of the 10th International Conference on Cognitive Radio Oriented Wireless Networks, CROWNCOM 2015, held in Doha, Qatar, in April 2015. The 66 revised full papers presented were carefully reviewed and selected from 110 submissions and cover the evolution of cognitive radio technology pertaining to 5G networks. The papers are clustered to topics on dynamic spectrum access/management, networking protocols for CR, modeling and theory, HW architecture and implementations, next generation of cognitive networks, standards and business models, and emerging applications for cognitive networks.

"This book examines how wireless sensor nodes with cognitive radio capabilities can address these network challenges and improve the spectrum utilization, presenting a broader picture on the applications, architecture, challenges, and open research directions in the area of WSN research"--Provided by publisher.

With the ubiquitous diffusion of the IoT, Cloud Computing, 5G and other evolved wireless technologies into our daily lives, the world will see the Internet of the future expand ever more quickly. Driving the progress of communications and connectivity are mobile and wireless technologies, including traditional WLANs technologies and low, ultra-power, short and long-

range technologies. These technologies facilitate the communication among the growing number of connected devices, leading to the generation of huge volumes of data. Processing and analysis of such "big data" brings about many opportunities, as well as many challenges, such as those relating to efficient power consumptions, security, privacy, management, and quality of service. This book is about the technologies, opportunities and challenges that can drive and shape the networks of the future. Written by established international researchers and experts, *Networks of the Future* answers fundamental and pressing research challenges in the field, including architectural shifts, concepts, mitigation solutions and techniques, and key technologies in the areas of networking. The book starts with a discussion on Cognitive Radio (CR) technologies as promising solutions for improving spectrum utilization, and also highlights the advances in CR spectrum sensing techniques and resource management methods. The second part of the book presents the latest developments and research in the areas of 5G technologies and Software Defined Networks (SDN). Solutions to the most pressing challenges facing the adoption of 5G technologies are also covered, and the new paradigm known as Fog Computing is examined in the context of 5G networks. The focus next shifts to efficient solutions for future heterogeneous networks. It consists of a collection of chapters that discuss self-healing solutions, dealing with Network Virtualization, QoS in heterogeneous networks, and energy efficient techniques for Passive Optical Networks and Wireless Sensor Networks. Finally, the areas of IoT and Big Data are discussed, including the latest developments and future perspectives of Big Data and the IoT paradigms.

Networking and Information Security, Wireless Networks, Network Applications and Convergence of IT and Telecom Networks, Computer Applications, Electrical Engineering & Computer Science, Network Function Virtualization and Software Defined Networks, general current computer and information technology topics

This is the third volume in a trilogy on modern Signal Processing. The three books provide a concise exposition of signal processing topics, and a guide to support individual practical exploration based on MATLAB programs. This book includes MATLAB codes to illustrate each of the main steps of the theory, offering a self-contained guide suitable for independent study. The code is embedded in the text, helping readers to put into practice the ideas and methods discussed. The book primarily focuses on filter banks, wavelets, and images. While the Fourier transform is adequate for periodic signals, wavelets are more suitable for other cases, such as short-duration signals: bursts, spikes, tweets, lung sounds, etc. Both Fourier and wavelet transforms decompose signals into components. Further, both are also invertible, so the original signals can be recovered from their components. Compressed sensing has emerged as a promising idea. One of the intended applications is networked devices or sensors, which are now becoming a reality; accordingly, this topic is also addressed. A selection of experiments that demonstrate image denoising applications are also included. In the interest of reader-friendliness, the longer programs have been grouped in an appendix; further, a second appendix on optimization has been added to supplement the content of the last chapter.

This book is the proceedings of the 2011 International Conference on Frontiers in Computer Education (ICFCE 2011) in Sanya, China, December 1-2, 2011. The contributions can be useful for researchers, software engineers, and programmers, all interested in promoting the computer and education development. Topics covered are computing and communication technology, network management, wireless networks, telecommunication, Signal and Image Processing, Machine Learning, educational management, educational psychology, educational system, education engineering, education technology and training. The emphasis is on methods and calculi for computer science and

education technology development, verification and verification tools support, experiences from doing developments, and the associated theoretical problems. Based on the popular Artech House classic, Digital Communication Systems Engineering with Software-Defined Radio, this book provides a practical approach to quickly learning the software-defined radio (SDR) concepts needed for work in the field. This up-to-date volume guides readers on how to quickly prototype wireless designs using SDR for real-world testing and experimentation. This book explores advanced wireless communication techniques such as OFDM, LTE, WLA, and hardware targeting. Readers will gain an understanding of the core concepts behind wireless hardware, such as the radio frequency front-end, analog-to-digital and digital-to-analog converters, as well as various processing technologies. Moreover, this volume includes chapters on timing estimation, matched filtering, frame synchronization message decoding, and source coding. The orthogonal frequency division multiplexing is explained and details about HDL code generation and deployment are provided. The book concludes with coverage of the WLAN toolbox with OFDM beacon reception and the LTE toolbox with downlink reception. Multiple case studies are provided throughout the book. Both MATLAB and Simulink source code are included to assist readers with their projects in the field.

This book contains extended versions of the best papers presented at the First International Workshop on Distributed Computing for Emerging Smart Networks, DiCES-N 2019, held in Hammamet, Tunisia, in October 2019. The 9 revised full papers included in this volume were carefully reviewed and selected from 24 initial submissions. The papers are organized in the following topical sections: ?intelligent transportation systems; distributed computing for networking and communication; artificial intelligence applied to cyber physical systems.

Original contributions from researchers describing their unpublished research contribution which is not currently under review by another conference or journal and addressing state of the art research are invited to share their work in all areas

- 1 Data Science & Engineering
- 2 Computational Intelligence
- 3 Communication & Networking
- 4 Signal & Image Processing
- 5 RF Circuits, Systems and Antennas
- 7 Power, Energy and Power Electronics

Cognitive radio – a paradigm for wireless communication in which either a network or a wireless node changes its transmission or reception parameters to communicate more efficiently and avoid interference -- is one of the most exciting emerging fields in communications technology. Taking an integrated development approach, this cutting-edge book provides you with clear methods for performing quantitative analysis of cognitive radio techniques in a variety of environments. This detailed reference presents a quantitative structure that helps you determine the capability of cognitive radio to address a number of constraints of current radio design. Critical to understanding the operation of cognitive radio, the book develops an analytic model for a range of spectrum environments. Moreover, this unique resource offers you unique insight into the application of

dynamic spectrum access (DSA) to improve the performance of all classes of wireless devices. DVD Included! Contains sample cognitive radio environments and closed form approximations of these environments in MATLAB file format. This data enables you to reproduce the analysis provided in the book, perform the exercises in each chapter, and extend the work through independent investigation and research.

This Special Issue contains a series of excellent research works on telecommunications and signal processing, selected from the 2018 41st International Conference on Telecommunications and Signal Processing (TSP) which was held on July 4–6, 2018, in Athens, Greece. The conference was organized in cooperation with the IEEE Region 8 (Europe, Middle East, and Africa), IEEE Greece Section, IEEE Czechoslovakia Section, and IEEE Czechoslovakia Section SP/CAS/COM Joint Chapter by seventeen universities from the Czech Republic, Hungary, Turkey, Taiwan, Japan, Slovak Republic, Spain, Bulgaria, France, Slovenia, Croatia, and Poland, for academics, researchers, and developers, and serves as a premier international forum for the annual exchange and promotion of the latest advances in telecommunication technology and signal processing. The aim of the conference is to bring together both novice and experienced scientists, developers, and specialists, to meet new colleagues, collect new ideas, and establish new cooperation between research groups from universities, research centers, and private sectors worldwide. This collection of 10 papers is highly recommended for researchers, and believed to be interesting, inspiring, and motivating for readers in their further research.

This book constitutes the refereed proceedings of the First International Conference on Future Internet Technologies and Trends, ICFITT 2017, held in Surat, India, August 31 – September 2, 2017. The 28 full papers were selected from 66 submissions and present next generation requirements for extremely high speed data communications, IoT, security, broadband technology, cognitive radio, vehicular technology, gigabit wireless networks, data management and big data

The key concepts and challenges you need to know about in a quick, practical guide, with minimum mathematics.

This book constitutes the refereed proceedings of the 7th International Conference on Wireless Algorithms, Systems, and Applications, WASA 2012, held in Yellow Mountains, China, in August 2012. The 24 revised full papers presented together with 32 invited papers were carefully reviewed and selected from 116 submissions. The papers cover a wide range of topics such as cognitive radio networks, cyber-physical network systems, mobile handset networking systems, underwater and radar wireless networks, and wireless and mobile security.

"This book further explores various issues and proposed solutions for the provision of Quality of Service (QoS) on the wireless networks"--Provided by publisher.

Wireless Communication Systems: Advanced Techniques for Signal Reception offers a unified framework for understanding today's newest techniques for signal processing in communication systems - and using them to design receivers for emerging wireless

systems. Two leading researchers cover a full range of physical-layer issues, including multipath, dispersion, interference, dynamism, and multiple-antenna systems. Topics include blind, group-blind, space-time, and turbo multiuser detection; narrowband interference suppression; Monte Carlo Bayesian signal processing; fast fading channels; advanced signal processing in coded OFDM systems, and more.

This book constitutes the refereed proceedings of the 9th International Conference on Wireless Algorithms, Systems and Applications, WASA 2014, held in Harbin, China, in June 2014. The 41 revised full papers presented together with 30 invited papers were carefully reviewed and selected from 134 submissions. The papers cover a wide range of topics including cognitive radio networks, wireless sensor networks, cyber-physical systems, distributed and localized algorithm design and analysis, information and coding theory for wireless networks, localization, mobile cloud computing, topology control and coverage, security and privacy, underwater and underground networks, vehicular networks, information processing and data management, programmable service interfaces, energy-efficient algorithms, system and protocol design, operating system and middle-ware support and experimental test-beds and models.

Cognitive radio is 5-G technology, comes under IEEE 802.22 WRAN (Wireless Regional Area Network) standards. It is currently experiencing rapid growth due to its potential to solve many of the problems affecting present-day wireless systems. The foremost objective of "Introduction to Cognitive Radio Networks and Applications" is to educate wireless communication generalists about cognitive radio communication networks. Written by international leading experts in the field, this book caters to the needs of researchers in the field who require a basis in the principles and the challenges of cognitive radio networks.

The book provides insights from the 2nd International Conference on Communication, Computing and Networking organized by the Department of Computer Science and Engineering, National Institute of Technical Teachers Training and Research, Chandigarh, India on March 29–30, 2018. The book includes contributions in which researchers, engineers, and academicians as well as industrial professionals from around the globe presented their research findings and development activities in the field of Computing Technologies, Wireless Networks, Information Security, Image Processing and Data Science. The book provides opportunities for the readers to explore the literature, identify gaps in the existing works and propose new ideas for research.

This book is a collection of accepted papers that were presented at the International Conference on Communication and Computing Systems (ICCCS-2016), Dronacharya College of Engineering, Gurgaon, September 9–11, 2016. The purpose of the conference was to provide a platform for interaction between scientists from industry, academia and other areas of society to discuss the current advancements in the field of communication and computing systems. The papers submitted to the proceedings were peer-reviewed by 2-3 expert referees. This volume contains 5 main subject areas: 1. Signal and Image Processing, 2. Communication & Computer Networks, 3. Soft Computing, Intelligent System, Machine Vision and Artificial Neural Network, 4. VLSI & Embedded System, 5. Software Engineering and Emerging Technologies.

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