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## KEY=LINUX - DESIREE SWANSON

### EMBEDDED AND NETWORKING SYSTEMS

#### DESIGN, SOFTWARE, AND IMPLEMENTATION

*CRC Press Embedded and Networking Systems: Design, Software, and Implementation explores issues related to the design and synthesis of high-performance embedded computer systems and networks. The emphasis is on the fundamental concepts and analytical techniques that are applicable to a range of embedded and networking applications, rather than on specific embedded architectures, software development, or system-level integration. This system point of view guides designers in dealing with the trade-offs to optimize performance, power, cost, and other system-level non-functional requirements. The book brings together contributions by researchers and experts from around the world, offering a global view of the latest research and development in embedded and networking systems. Chapters highlight the evolution and trends in the field and supply a fundamental and analytical understanding of some underlying technologies. Topics include the co-design of embedded systems, code optimization for a variety of applications, power and performance trade-offs, benchmarks for evaluating embedded systems and their components, and mobile sensor network systems. The book also looks at novel applications such as mobile sensor systems and video networks. A comprehensive review of groundbreaking technology and applications, this book is a timely resource for system designers, researchers, and students interested in the possibilities of embedded and networking systems. It gives readers a better understanding of an emerging technology evolution that is helping drive telecommunications into the next decade.*

#### NETWORKED EMBEDDED SENSING AND CONTROL

### WORKSHOP NESC'05: UNIVERSITY OF NOTRE DAME, USA, OCTOBER 2005 PROCEEDINGS

*Lecture Notes in Control and Information Sciences This book contains the proceedings of the Workshop on Networked Embedded Sensing and Control. This workshop aims at bringing together researchers working on different aspects of networked embedded systems in order to exchange research experiences and to identify the main scientific challenges in this exciting new area.*

#### SECURITY IN DISTRIBUTED AND NETWORKING SYSTEMS

*World Scientific Security issues in distributed systems and network systems are extremely important. This edited book provides a comprehensive treatment on security issues in these systems, ranging from attacks to all kinds of solutions from prevention to detection approaches. The books includes security studies in a range of systems including peer-to-peer networks, distributed systems, Internet, wireless networks, Internet service, e-commerce, mobile and pervasive computing. Security issues in these systems include attacks, malicious node detection, access control, authentication, intrusion detection, privacy and anonymity, security architectures and protocols, security theory and tools, secrecy and integrity, and trust models. This volume provides an excellent reference for students, faculty, researchers and people in the industry related to these fields.*

#### APPLIED NETWORK SECURITY

*Packt Publishing Ltd Master the art of detecting and averting advanced network security attacks and techniques About This Book Deep dive into the advanced network security attacks and techniques by leveraging tools such as Kali Linux 2, Metasploit, Nmap, and Wireshark Become an expert in cracking WiFi passwords, penetrating anti-virus networks, sniffing the network, and USB hacks This step-by-step guide shows you how to confidently and quickly detect vulnerabilities for your network before the hacker does Who This Book Is For This book is for network security professionals, cyber security professionals, and Pentesters who are well versed with fundamentals of network security and now want to master it. So whether you're a cyber security professional, hobbyist, business manager, or student aspiring to becoming an ethical hacker or just want to learn more about the cyber security aspect of the IT industry, then this book is definitely for you. What You Will Learn Use SET to clone webpages including the login page Understand the concept of Wi-Fi cracking and use PCAP file to obtain passwords Attack using a USB as payload injector Familiarize yourself with the process of trojan attacks Use Shodan to identify honeypots, rogue access points, vulnerable webcams, and other exploits found in the database Explore various tools for wireless penetration testing and auditing Create an evil twin to intercept network traffic Identify human patterns in networks attacks In Detail Computer networks are increasing at an exponential rate and the most challenging factor organisations are currently facing is network security. Breaching a network is not considered an ingenious effort anymore, so it is very important to gain expertise in securing your network. The book begins by showing you how to identify malicious network behaviour and improve your wireless security. We will teach you what network sniffing is, the various tools associated with it, and how to scan for vulnerable wireless networks. Then we'll show you how attackers hide the payloads and bypass the victim's antivirus. Furthermore, we'll teach you how to spoof IP / MAC address and perform an SQL injection attack and prevent it on your website. We will create an evil twin and demonstrate how to intercept network traffic. Later, you will get familiar with Shodan and Intrusion Detection and will explore the features and tools associated with it. Toward the end, we cover tools such as Yardstick, Ubetooth, Wifi Pineapple, and Alfa used for wireless penetration testing and auditing. This book will show the tools and platform to ethically hack your own network whether it is for your business or for your personal home Wi-Fi. Style and approach This mastering-level guide is for all the security professionals who are eagerly waiting to master network security skills and protecting their organization with ease. It contains practical scenarios on various network security attacks and will teach you how to avert these attacks.*

#### ENERGY-AWARE SYSTEMS AND NETWORKING FOR SUSTAINABLE INITIATIVES

*IGI Global "This book covers a great variety of topics such as materials, environment, electronics, and computing, offering a vital source of information detailing the latest architectures, frameworks, methodologies, and research on energy-aware systems and networking for sustainable initiatives"--*

#### EMBEDDED NETWORKING WITH CAN AND CANOPEN

*Copperhill Media CAN (Controller Area Network) is a serial communication protocol that was originally developed for the automobile industry. CAN is far superior to conventional serial technologies such as RS232 in regards to functionality and reliability and yet CAN implementations are more cost effective. CANopen, a higher layer protocol based on CAN, provides the means to apply the ingenious CAN features to a variety of industrial-strength applications. Many users, for example in the field of medical engineering, opted for CANopen because they have to meet particularly stringent safety requirements. Similar requirements had to be considered by manufacturers of other equipment with very high safety or reliability requirements (e.g. robots, lifts and transportation systems). Providing a detailed look at both CAN and CANopen, this book examines those technologies in the context of embedded networks. There is an overview of general embedded networking and an introduction to the primary functionality provided by CANopen. Everything one needs to know to configure and operate a CANopen network using off-the-shelf components is described, along with details for those designers who want to build their own CANopen nodes. The wide variety of applications for CAN and CANopen is discussed, and instructions in developing embedded networks based on the protocol are included. In addition, references and examples using MicroCANopen, PCANopen Magic, and Vector's high-end development tools are provided.*

#### WIRELESS SENSOR NETWORKS

#### CONCEPTS, APPLICATIONS, EXPERIMENTATION AND ANALYSIS

*Springer This book focuses on the principles of wireless sensor networks (WSNs), their applications, and their analysis tools, with meticulous attention paid to definitions and terminology. This book presents the adopted technologies and their manufacturers in detail, making WSNs tangible for the reader. In introductory computer networking books, chapter sequencing follows the bottom-up or top-down architecture of the 7-layer protocol. This book addresses subsequent steps in this process, both horizontally and vertically, thus fostering a clearer and deeper understanding through chapters that elaborate on WSN concepts and issues. With such depth, this book is intended for a wide audience; it is meant to be a helper and motivator for senior undergraduates, postgraduates, researchers, and practitioners. It lays out important concepts and WSN-related applications; uses appropriate literature to back research and practical issues; and focuses on new trends. Senior undergraduate students can use it to familiarize themselves with conceptual foundations and practical project implementations. For graduate students and researchers, test beds and simulators provide vital insights into analysis methods and tools for WSNs. Lastly, in addition to applications and deployment, practitioners will be able to learn more about WSN manufacturers and components within several platforms and test beds.*

#### NETWORK-CENTRIC SERVICE ORIENTED ENTERPRISE

*Springer Science & Business Media This is the first comprehensive book about the emerging technology of Network-Centric Service-Oriented Enterprise (NCSOE). It establishes a system-of-systems (SoS) view of information technologies. The book discusses the practical capability of a competitive ecosystem in terms of how to achieve decision superiority from exploiting information and situation awareness as a key enabler in multiple sectors of the economy.*

#### WIRELESS SENSOR NETWORK TECHNOLOGIES FOR THE INFORMATION EXPLOSION ERA

*Springer Wireless Sensor Network Technologies for Information Explosion Era The amount and value of information available due to rapid spread of information technology is exploding. Typically, large enterprises have approximately a petabyte of operational data stored in hundreds of data repositories supporting thousands of applications. Data storage volumes grow in excess of 50% annually. This growth is expected to continue due to vast proliferation of existing information systems and the introduction of new data sources. Wireless Sensor Networks (WSNs) represent one of the most notable examples of such new data sources. In recent few years, various types of WSNs have been deployed and the amount of information generated by wireless sensors increases rapidly. The information -*

losion requires establishing novel data processing and communication techniques for WSNs. This volume aims to cover both theoretical and practical aspects - lated to this challenge, and it explores directions for future research to enable efficient utilization of WSNs in the information-explosion era. The book is organized in three main parts that consider (1) technical issues of WSNs, (2) the integration of multiple WSNs, and (3) the development of WSNs systems and testbeds for conducting practical experiments. Each part consists of three chapters.

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## MULTIPLEXED NETWORKS FOR EMBEDDED SYSTEMS

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### CAN, LIN, FLEXRAY, SAFE-BY-WIRE...

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John Wiley & Sons Multiplexed networks are essential for the unified, efficient and cost-effective exchange of electronic information within embedded component systems. This is especially important in automotive manufacturing as vehicles become increasingly reliant on robust electronic networks and systems for improved reliability, anti-lock brake systems (ABS), steering, on-board navigation systems, and much more. The latest systems such as X-by-Wire and FlexRay aim to produce faster, fault-tolerant network component interconnects, for state-of-the-art network implementation and safer, more reliable engineering of vehicular systems. This book provides a thorough and comprehensive introduction to automotive multiplexed network buses, covering the technical principles, components, implementation issues and applications. Key features: Presents a thorough coverage of the controller area network (CAN) protocol, including information on physical layers, conformity problems, hardware and software tools, and application layers. Gives a detailed description of the new local interconnect network (LIN) bus, setting out its developments, properties, problems and ways to overcome these. Examines the existing and emerging network buses such as time-triggered CAN (TTCAN), FlexRay and X-by-Wire. Explores the possibilities for linking the various buses that are discussed, explaining how the Fail-Safe-System basis chip (SBC) and other gateways are designed and constructed. Analyses wired and wireless internal and external serial links, including Safe-by-Wire plus, I2C, Media Oriented Systems Transport (MOST), remote keyless entry, tyre pressure monitoring systems (TPMS) and Bluetooth. A valuable guide to embedded systems for a range of applications, Multiplexed Networks for Embedded Systems: CAN, LIN, FlexRay, Safe-by-Wire...is essential reading for electronics engineers and researchers developing electronics for the automotive industry. It is also useful for practising aerospace engineers and other practitioners interested in the application of network technologies, and advanced students taking courses on automotive and embedded system design.

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## EMBEDDED SYSTEMS HANDBOOK

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### NETWORKED EMBEDDED SYSTEMS

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CRC Press Considered a standard industry resource, the Embedded Systems Handbook provided researchers and technicians with the authoritative information needed to launch a wealth of diverse applications, including those in automotive electronics, industrial automated systems, and building automation and control. Now a new resource is required to report on current developments and provide a technical reference for those looking to move the field forward yet again. Divided into two volumes to accommodate this growth, the Embedded Systems Handbook, Second Edition presents a comprehensive view on this area of computer engineering with a currently appropriate emphasis on developments in networking and applications. Those experts directly involved in the creation and evolution of the ideas and technologies presented offer tutorials, research surveys, and technology overviews that explore cutting-edge developments and deployments and identify potential trends. This second self-contained volume of the handbook, Network Embedded Systems, focuses on select application areas. It covers automotive field, industrial automation, building automation, and wireless sensor networks. This volume highlights implementations in fast-evolving areas which have not received proper coverage in other publications. Reflecting the unique functional requirements of different application areas, the contributors discuss inter-node communication aspects in the context of specific applications of networked embedded systems. Those looking for guidance on preliminary design of embedded systems should consult the first volume: Embedded Systems Design and Verification.

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## DISTRIBUTED SENSOR NETWORKS, SECOND EDITION

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### SENSOR NETWORKING AND APPLICATIONS

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CRC Press The best-selling Distributed Sensor Networks became the definitive guide to understanding this far-reaching technology. Preserving the excellence and accessibility of its predecessor, Distributed Sensor Networks, Second Edition once again provides all the fundamentals and applications in one complete, self-contained source. Ideal as a tutorial for students or as research material for engineers, the book gives readers up-to-date, practical insight on all aspects of the field. Revised and expanded, this second edition incorporates contributions from many veterans of the DARPA ISO SENSIT program as well as new material from distinguished researchers in the field. Sensor Networking and Applications focuses on sensor deployment and networking, adaptive tasking, self-configuration, and system control. In the expanded applications section, the book draws on the insight of practitioners in the field. Readers of this book may also be interested in Distributed Sensor Networks, Second Edition: Image and Sensor Signal Processing (ISBN: 9781439862827).

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## SECURITY IN EMERGING WIRELESS COMMUNICATION AND NETWORKING SYSTEMS

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### FIRST INTERNATIONAL ICST WORKSHOP, SEWCN 2009, ATHENS, GREECE, SEPTEMBER 14, 2009, REVISED SELECTED PAPERS

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Springer The First ICST International Workshop on Security in Emerging Wireless Communication and Networking Systems (SEWCN 2009) was held in Athens, Greece, September 14, in conjunction with SecureComm 2009. SEWCN 2009 was sponsored by the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering (ICST). The Workshop Chairs were Qijun Gu from Texas State University- San Marcos, USA, and Wanyu Zang from Western Illinois University, USA. The workshop invited 20 researchers from academia and industry around the world in the areas of networking and security to form the Program Committee. The workshop received nine submissions and each submission received two or three double-blind reviews. The review process started on July 6 and ended on July 27. In all, 21 reviews were received. Based on the review scores and comments, seven papers with average score 0 or better were accepted for presentation and inclusion in the workshop proceedings. The workshop emphasized new ideas for secure architectures and protocols to enhance the emerging wireless systems. The accepted papers cover topics on applied cryptography, key management, vulnerability analysis, privacy, authentication, and intrusion detection for emerging wireless systems. The papers were presented in two sessions, chaired by Nikolaos Preve from the National Technical University of Athens, Greece, and Theofilos Chryssikos from the University of Patras, Greece.

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## HANDBOOK OF NETWORKED AND EMBEDDED CONTROL SYSTEMS

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Springer Science & Business Media The vast majority of control systems built today are embedded; that is, they rely on built-in, special-purpose digital computers to close their feedback loops. Embedded systems are common in aircraft, factories, chemical processing plants, and even in cars—a single high-end automobile may contain over eighty different computers. The design of embedded controllers and of the intricate, automated communication networks that support them raises many new questions—practical, as well as theoretical—about network protocols, compatibility of operating systems, and ways to maximize the effectiveness of the embedded hardware. This handbook, the first of its kind, provides engineers, computer scientists, mathematicians, and students a broad, comprehensive source of information and technology to address many questions and aspects of embedded and networked control. Separated into six main sections—Fundamentals, Hardware, Software, Theory, Networking, and Applications—this work unifies into a single reference many scattered articles, websites, and specification sheets. Also included are case studies, experiments, and examples that give a multifaceted view of the subject, encompassing computation and communication considerations.

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## WIRELESS SENSOR NETWORKS

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### CURRENT STATUS AND FUTURE TRENDS

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CRC Press Wireless sensor networks (WSNs) utilize fast, cheap, and effective applications to imitate the human intelligence capability of sensing on a wider distributed scale. But acquiring data from the deployment area of a WSN is not always easy and multiple issues arise, including the limited resources of sensor devices run with one-time batteries. Additi

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## WIRELESS SENSOR AND ACTOR NETWORKS II

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### PROCEEDINGS OF THE 2008 IFIP CONFERENCE ON WIRELESS SENSOR AND ACTOR NETWORKS (WSAN 08), OTTAWA, ONTARIO, CANADA, JULY 14-15, 2008

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Springer Science & Business Media This book constitutes the refereed proceedings of the IFIP Conference on Wireless Sensors and Actor Networks held in Ottawa, Canada, July, 2008. This series publishes state-of-the-art results in the sciences and technologies of information and communication. The scope of the series includes: foundations of computer science; software theory and practice; education; computer applications in technology; communication systems; systems modeling and optimization; information systems; computers and society; computer systems technology; security and protection in information processing systems; artificial intelligence; and human-computer interaction. Proceedings and post-proceedings of refereed international conferences in computer science and interdisciplinary fields are featured. These results often precede journal publication and represent the most current research. The principal aim of the IFIP series is to encourage education and the dissemination and exchange of information about all aspects of computing.

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## EMBEDDED AND NETWORKING SYSTEMS

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### DESIGN, SOFTWARE, AND IMPLEMENTATION

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Chapman & Hall/CRC Embedded and Networking Systems: Design, Software, and Implementation explores issues related to the design and synthesis of high-performance embedded computer systems and networks. The emphasis is on the fundamental concepts and analytical techniques that are applicable to a range of embedded and networking applications, rather than on specific embedded architectures, software development, or system-level integration. This system point of view guides designers in dealing with the trade-offs to optimize performance, power, cost, and other system-level non-functional requirements. The book brings together contributions by researchers and experts from around the world, offering a global view of the latest research and development in embedded and networking systems. Chapters highlight the evolution and trends in the field and supply a fundamental and analytical understanding of some underlying technologies. Topics include the co-design of embedded systems, code optimization for a variety of applications, power and performance trade-offs, benchmarks for evaluating embedded systems and their components, and mobile sensor network systems. The book also looks at novel applications such as mobile sensor systems and video networks. A comprehensive review of groundbreaking technology and applications, this book is a timely resource for system designers, researchers, and students interested in the possibilities of embedded and networking systems. It gives readers a better understanding of an emerging technology evolution that is helping drive telecommunications into the next decade.

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## WIRELESS SENSOR NETWORKS FOR HEALTHCARE APPLICATIONS

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**Artech House** This unique reference focuses on methods of application, validation and testing based on real deployments of sensor networks in the clinical and home environments. Key topics include healthcare and wireless sensors, sensor network applications, designs of experiments using sensors, data collection and decision making, clinical deployment of wireless sensor networks, contextual awareness medication prompting field trials in homes, social health monitoring, and the future of wireless sensor networks in healthcare.

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## REAL-TIME EMBEDDED SYSTEMS

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### OPTIMIZATION, SYNTHESIS, AND NETWORKING

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**CRC Press** Ubiquitous in today's consumer-driven society, embedded systems use microprocessors that are hidden in our everyday products and designed to perform specific tasks. Effective use of these embedded systems requires engineers to be proficient in all phases of this effort, from planning, design, and analysis to manufacturing and marketing. Taking a systems-level approach, *Real-Time Embedded Systems: Optimization, Synthesis, and Networking* describes the field from three distinct aspects that make up the three major trends in current embedded system design. The first section of the text examines optimization in real-time embedded systems. The authors present scheduling algorithms in multi-core embedded systems, instruct on a robust measurement against the inaccurate information that can exist in embedded systems, and discuss potential problems of heterogeneous optimization. The second section focuses on synthesis-level approaches for embedded systems, including a scheduling algorithm for phase change memory and scratch pad memory and a treatment of thermal-aware multiprocessor synthesis technology. The final section looks at networking with a focus on task scheduling in both a wireless sensor network and cloud computing. It examines the merging of networking and embedded systems and the resulting evolution of a new type of system known as the cyber physical system (CPS). Encouraging readers to discover how the computer interacts with its environment, *Real-Time Embedded Systems* provides a sound introduction to the design, manufacturing, marketing, and future directions of this important tool.

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## CONCEPTS, APPLICATIONS, EXPERIMENTATION AND ANALYSIS OF WIRELESS SENSOR NETWORKS

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**Springer Nature** The new edition of this popular book has been transformed into a hands-on textbook, focusing on the principles of wireless sensor networks (WSNs), their applications, their protocols and standards, and their analysis and test tools; a meticulous care has been accorded to the definitions and terminology. To make WSNs felt and seen, the adopted technologies as well as their manufacturers are presented in detail. In introductory computer networking books, chapters sequencing follows the bottom up or top down architecture of the seven layers protocol. This book starts some steps later, with chapters ordered based on a topic's significance to the elaboration of wireless sensor networks (WSNs) concepts and issues. With such a depth, this book is intended for a wide audience, it is meant to be a helper and motivator, for both the senior undergraduates, postgraduates, researchers, and practitioners; concepts and WSNs related applications are laid out, research and practical issues are backed by appropriate literature, and new trends are put under focus. For senior undergraduate students, it familiarizes readers with conceptual foundations, applications, and practical project implementations. For graduate students and researchers, transport layer protocols and cross-layering protocols are presented and testbeds and simulators provide a must follow emphasis on the analysis methods and tools for WSNs. For practitioners, besides applications and deployment, the manufacturers and components of WSNs at several platforms and testbeds are fully explored.

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## ULTRA-LOW ENERGY WIRELESS SENSOR NETWORKS IN PRACTICE

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### THEORY, REALIZATION AND DEPLOYMENT

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**John Wiley & Sons** Finally a book on *Wireless Sensor Networks* that covers real world applications and contains practical advice! Kuorilehto et al. have written the first practical guide to wireless sensor networks. The authors draw on their experience in the development and field-testing of autonomous wireless sensor networks (WSNs) to offer a comprehensive reference on fundamentals, practical matters, limitations and solutions of this fast moving research area. *Ultra Low Energy Wireless Sensor Networks in Practice: Explains the essential problems and issues in real wireless sensor networks, and analyzes the most promising solutions. Provides a comprehensive guide to applications, functionality, protocols, and algorithms for WSNs. Offers practical experiences from new applications and their field-testing, including several deployed networks. Includes simulations and physical measurements for energy consumption, bit rate, latency, memory, and lifetime. Covers embedded resource-limited operating systems, middleware and application software. Ultra Low Energy Wireless Sensor Networks in Practice will prove essential reading for Research Scientists, advanced students in Networking, Electrical Engineering and Computer Science as well as Product Managers and Design Engineers.*

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## BUILDING SENSOR NETWORKS

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### FROM DESIGN TO APPLICATIONS

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**CRC Press** For all the interest that wireless sensor networks have created over the past decade, there are few examples to show that they are truly delivering on this promise and anticipation. What is missing? Deviating from the usual focus on routing and energy efficiency, *Building Sensor Networks: From Design to Applications* attempts to stitch together the path from conceptual development of applications, on one end, to actual complete applications at the other. With this change in perspective, the book examines important facets of wireless sensor networks (WSNs) that are not often discussed in the literature. From Design Practices to the Networking Protocols that Glue Applications Together Organized into three sections, the book presents insights from international experts representing both industry and academia. The first section, on design practices, explores alternative ways to approach the tasks of developing a suitable WSN solution to an application and assisting that development in a manner that is not necessarily tied to a particular application. The second section, on networking protocols, illustrates the impact of the intermediaries—the "glue" of putting applications together. Chapters look at ways to address traffic, delays in network clustering, and the coexistence of a WSN with other systems on a frequency band. The final section of the book delves into experiences with applications in chemical sensing, defense, global trade and security, and ecosystem monitoring. Although these applications may fail the purist definition of an ideal WSN, they offer valuable lessons for the future development and deployment of WSNs. *Challenge Your Thinking about Designing WSN Applications* Emphasizing the need to build applications, the contributors present examples of what applications of WSNs could look like and identify the constraints. Throughout, the book challenges and illuminates your thinking about how to tame the complexity of designing a WSN application. It is essential reading for anyone interested in future wireless technologies.

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## NETWORK AND SYSTEM SECURITY

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### 8TH INTERNATIONAL CONFERENCE, NSS 2014, XI'AN, CHINA, OCTOBER 15-17, 2014. PROCEEDINGS

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**Springer** This book constitutes the proceedings of the 8th International Conference on Network and System Security, NSS 2014, held in Xi'an, China, in October 2014. The 35 revised full papers and 12 revised short papers presented were carefully reviewed and selected from 155 initial submissions. The papers are organized in topical sections on cloud computing, access control, network security, security analysis, public key cryptography, system security, privacy-preserving systems and biometrics, and key management and distribution.

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## LOCALIZATION ALGORITHMS AND STRATEGIES FOR WIRELESS SENSOR NETWORKS: MONITORING AND SURVEILLANCE TECHNIQUES FOR TARGET TRACKING

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### MONITORING AND SURVEILLANCE TECHNIQUES FOR TARGET TRACKING

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**IGI Global** Wireless localization techniques are an area that has attracted interest from both industry and academia, with self-localization capability providing a highly desirable characteristic of wireless sensor networks. *Localization Algorithms and Strategies for Wireless Sensor Networks* encompasses the significant and fast growing area of wireless localization techniques. This book provides comprehensive and up-to-date coverage of topics and fundamental theories underpinning measurement techniques and localization algorithms. A useful compilation for academicians, researchers, and practitioners, this Premier Reference Source contains relevant references and the latest studies emerging out of the wireless sensor network field.

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## WIRELESS SENSOR NETWORK SECURITY

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IOS Press

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## INTRODUCTION TO EMBEDDED SYSTEMS

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### A CYBER-PHYSICAL SYSTEMS APPROACH

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**MIT Press** An introduction to the engineering principles of embedded systems, with a focus on modeling, design, and analysis of cyber-physical systems. The most visible use of computers and software is processing information for human consumption. The vast majority of computers in use, however, are much less visible. They run the engine, brakes, seatbelts, airbag, and audio system in your car. They digitally encode your voice and construct a radio signal to send it from your cell phone to a base station. They command robots on a factory floor, power generation in a power plant, processes in a chemical plant, and traffic lights in a city. These less visible computers are called embedded systems, and the software they run is called embedded software. The principal challenges in designing and analyzing embedded systems stem from their interaction with physical processes. This book takes a cyber-physical approach to embedded systems, introducing the engineering concepts underlying embedded systems as a technology and as a subject of study. The focus is on modeling, design, and analysis of cyber-physical systems, which integrate computation, networking, and physical processes. The second edition offers two new chapters, several new exercises, and other improvements. The book can be used as a textbook at the advanced undergraduate or introductory graduate level and as a professional reference for practicing engineers and computer scientists. Readers should have some familiarity with machine structures, computer programming, basic discrete mathematics and algorithms, and signals and systems.

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## NEW ADVANCES IN DEPENDABILITY OF NETWORKS AND SYSTEMS

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### PROCEEDINGS OF THE SEVENTEENTH INTERNATIONAL CONFERENCE ON DEPENDABILITY OF COMPUTER SYSTEMS DEPCOS-RELCOMEX, JUNE 27 - JULY 1, 2022, WROCLAW, POLAND

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Springer Nature

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## ARTIFICIAL NEURAL NETWORKS AND MACHINE LEARNING - ICANN 2019: TEXT AND TIME SERIES

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### 28TH INTERNATIONAL CONFERENCE ON ARTIFICIAL NEURAL NETWORKS, MUNICH, GERMANY, SEPTEMBER 17-19, 2019, PROCEEDINGS, PART IV

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Springer Nature The proceedings set LNCS 11727, 11728, 11729, 11730, and 11731 constitute the proceedings of the 28th International Conference on Artificial Neural Networks, ICANN 2019, held in Munich, Germany, in September 2019. The total of 277 full papers and 43 short papers presented in these proceedings was carefully reviewed and selected from 494 submissions. They were organized in 5 volumes focusing on theoretical neural computation; deep learning; image processing; text and time series; and workshop and special sessions.

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## INDUSTRIAL NETWORKS AND INTELLIGENT SYSTEMS

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### 7TH EAI INTERNATIONAL CONFERENCE, INISCOM 2021, HANOI, VIETNAM, APRIL 22-23, 2021, PROCEEDINGS

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Springer Nature This book constitutes the refereed proceedings of the 7th EAI International Conference on Industrial Networks and Intelligent Systems, INISCOM 2021, held in Hanoi, Vietnam, in April 2021. The 39 full papers were selected from XX submissions and are organized thematically in tracks on telecommunications systems and networks; hardware, software and application designs; information processing and data analysis; industrial networks and intelligent systems; security and privacy.

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## 6LOWPAN

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### THE WIRELESS EMBEDDED INTERNET

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John Wiley & Sons "It is stunningly thorough and takes readers meticulously through the design, configuration and operation of IPv6-based, low-power, potentially mobile radio-based networking." Vint Cerf, Vice President and Chief Internet Evangelist, Google This book provides a complete overview of IPv6 over Low Power Wireless Area Network (6LoWPAN) technology In this book, the authors provide an overview of the 6LoWPAN family of standards, architecture, and related wireless and Internet technology. Starting with an overview of the IPv6 'Internet of Things', readers are offered an insight into how these technologies fit together into a complete architecture. The 6LoWPAN format and related standards are then covered in detail. In addition, the authors discuss the building and operation of 6LoWPAN networks, including bootstrapping, routing, security, Internet integration, mobility and application protocols. Furthermore, implementation aspects of 6LoWPAN are covered. Key Features: Demonstrates how the 6LoWPAN standard makes the latest Internet protocols available to even the most minimal embedded devices over low-rate wireless networks Provides an overview of the 6LoWPAN standard, architecture and related wireless and Internet technology, and explains the 6LoWPAN protocol format in detail Details operational topics such as bootstrapping, routing, security, Internet integration, mobility and application protocols Written by expert authors with vast experience in the field (industrial and academic) Includes an accompanying website containing tutorial slides, course material and open-source code with examples (<http://6lowpan.net>) 6LoWPAN: The Wireless Embedded Internet is an invaluable reference for professionals working in fields such as telecommunications, control, and embedded systems. Advanced students and teachers in electrical engineering, information technology and computer science will also find this book useful.

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## DISTRIBUTED SENSOR NETWORKS, SECOND EDITION

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### IMAGE AND SENSOR SIGNAL PROCESSING

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CRC Press The best-selling Distributed Sensor Networks became the definitive guide to understanding this far-reaching technology. Preserving the excellence and accessibility of its predecessor, Distributed Sensor Networks, Second Edition once again provides all the fundamentals and applications in one complete, self-contained source. Ideal as a tutorial for students or as research material for engineers, the book gives readers up-to-date, practical insight on all aspects of the field. Revised and expanded, this second edition incorporates contributions from many veterans of the DARPA ISO SENSIT program as well as new material from distinguished researchers in the field. Image and Sensor Signal Processing focuses on software issues and the history and future of sensor networks. The book also covers information fusion and power management. Readers of this book may also be interested in Distributed Sensor Networks, Second Edition: Sensor Networking and Applications (ISBN: 9781439862872).

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## FPGA IMPLEMENTATIONS OF NEURAL NETWORKS

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Springer Science & Business Media During the 1980s and early 1990s there was significant work in the design and implementation of hardware neurocomputers. Nevertheless, most of these efforts may be judged to have been unsuccessful: at no time have hardware neurocomputers been in wide use. This lack of success may be largely attributed to the fact that earlier work was almost entirely aimed at developing custom neurocomputers, based on ASIC technology, but for such niche uses this technology was never sufficiently developed or competitive enough to justify large-scale adoption. On the other hand, gate-arrays of the period mentioned were never large enough nor fast enough for serious artificial neural network (ANN) applications. But technology has now improved: the capacity and performance of current FPGAs are such that they present a much more realistic alternative. Consequently neurocomputers based on FPGAs are now a much more practical proposition than they have been in the past. This book summarizes some work towards this goal and consists of 12 papers that were selected, after review, from a number of submissions. The book is nominally divided into three parts: Chapters 1 through 4 deal with foundational issues; Chapters 5 through 11 deal with a variety of implementations; and Chapter 12 looks at the lessons learned from a large-scale project and also reconsiders design issues in light of current and future technology.

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## SECURITY IN PERVASIVE COMPUTING

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### THIRD INTERNATIONAL CONFERENCE, SPC 2006, YORK, UK, APRIL 18-21, 2006, PROCEEDINGS

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Springer Science & Business Media This book constitutes the refereed proceedings of the Third International Conference on Security in Pervasive Computing, SPC 2006, held in York, UK, in April 2006. The 16 revised papers presented together with the extended abstract of 1 invited talk were carefully reviewed and selected from 56 submissions. The papers are organized in topical sections on protocols, mechanisms, integrity, privacy and security, information flow and access control, and authentication.

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## LOW-POWER SMART IMAGERS FOR VISION-ENABLED SENSOR NETWORKS

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Springer Science & Business Media This book presents a comprehensive, systematic approach to the development of vision system architectures that employ sensory-processing concurrency and parallel processing to meet the autonomy challenges posed by a variety of safety and surveillance applications. Coverage includes a thorough analysis of resistive diffusion networks embedded within an image sensor array. This analysis supports a systematic approach to the design of spatial image filters and their implementation as vision chips in CMOS technology. The book also addresses system-level considerations pertaining to the embedding of these vision chips into vision-enabled wireless sensor networks. Describes a system-level approach for designing of vision devices and embedding them into vision-enabled, wireless sensor networks; Surveys state-of-the-art, vision-enabled WSN nodes; Includes details of specifications and challenges of vision-enabled WSNs; Explains architectures for low-energy CMOS vision chips with embedded, programmable spatial filtering capabilities; Includes considerations pertaining to the integration of vision chips into off-the-shelf WSN platforms.

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## WIRELESS SENSOR NETWORKS

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### PRINCIPLES, DESIGN AND APPLICATIONS

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Springer Science & Business Media Wireless Sensor Networks presents the latest practical solutions to the design issues presented in wireless-sensor-network-based systems. Novel features of the text, distributed throughout, include workable solutions, demonstration systems and case studies of the design and application of wireless sensor networks (WSNs) based on the first-hand research and development experience of the author, and the chapters on real applications: building fire safety protection; smart home automation; and logistics resource management. Case studies and applications illustrate the practical perspectives of: · sensor node design; · embedded software design; · routing algorithms; · sink node positioning; · co-existence with other wireless systems; · data fusion; · security; · indoor location tracking; · integrating with radio-frequency identification; and · Internet of things Wireless Sensor Networks brings together multiple strands of research in the design of WSNs, mainly from software engineering, electronic engineering, and wireless communication perspectives, into an over-arching examination of the subject, benefiting students, field engineers, system developers and IT professionals. The contents have been well used as the teaching material of a course taught at postgraduate level in several universities making it suitable as an advanced text book and a reference book for final-year undergraduate and postgraduate students.

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## THEORY AND ENGINEERING OF DEPENDABLE COMPUTER SYSTEMS AND NETWORKS

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### PROCEEDINGS OF THE SIXTEENTH INTERNATIONAL CONFERENCE ON DEPENDABILITY OF COMPUTER SYSTEMS DEPCOS-RELCOMEX, JUNE 28 - JULY 2, 2021, WROCŁAW, POLAND

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Springer Nature This book contains papers on selected aspects of dependability analysis in computer systems and networks, which were chosen for discussion during the 16th DepCoS-RELCOMEX conference held in Wrocław, Poland, from June 28 to July 2, 2021. Their collection will be a valuable source material for scientists, researchers, practitioners and students who are dealing with design, analysis and engineering of computer systems and networks and must ensure their dependable operation. Being probably the most complex technical systems ever engineered by man (and also—the most dynamically evolving ones), organization of contemporary computer systems cannot be interpreted only as structures built on the basis of (unreliable) technical resources. Their evaluation must take into account a specific blend of interacting people (their needs and behaviours), networks (together with mobile properties, cloud organization, Internet of Everything, etc.) and a large number of users dispersed geographically and constantly producing an unconceivable number of applications. Ever-growing number of research methods being continuously developed for dependability analyses apply the newest techniques of artificial and computational intelligence. Selection of papers in these proceedings illustrates diversity of multi-disciplinary topics which are considered in present-day dependability explorations.

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## INTELLIGENT SENSOR NETWORKS

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**THE INTEGRATION OF SENSOR NETWORKS, SIGNAL PROCESSING AND MACHINE LEARNING**

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**CRC Press** In the last decade, wireless or wired sensor networks have attracted much attention. However, most designs target general sensor network issues including protocol stack (routing, MAC, etc.) and security issues. This book focuses on the close integration of sensing, networking, and smart signal processing via machine learning. Based on their world-class research, the authors present the fundamentals of intelligent sensor networks. They cover sensing and sampling, distributed signal processing, and intelligent signal learning. In addition, they present cutting-edge research results from leading experts.

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**NETWORK PROCESSOR DESIGN**

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**ISSUES AND PRACTICES**

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**Elsevier** Responding to ever-escalating requirements for performance, flexibility, and economy, the networking industry has opted to build products around network processors. To help meet the formidable challenges of this emerging field, the editors of this volume created the first Workshop on Network Processors, a forum for scientists and engineers to discuss latest research in the architecture, design, programming, and use of these devices. This series of volumes contains not only the results of the annual workshops but also specially commissioned material that highlights industry's latest network processors. Like its predecessor volume, *Network Processor Design: Principles and Practices, Volume 2* defines and advances the field of network processor design. Volume 2 contains 20 chapters written by the field's leading academic and industrial researchers, with topics ranging from architectures to programming models, from security to quality of service. Describes current research at UNC Chapel Hill, University of Massachusetts, George Mason University, UC Berkeley, UCLA, Washington University in St. Louis, Linköpings Universitet, IBM, Kayamba Inc., Network Associates, and University of Washington. Reports the latest applications of the technology at Intel, IBM, Agere, Motorola, AMCC, IDT, Teja, and Network Processing Forum.

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**LINUX TCP/IP NETWORKING FOR EMBEDDED SYSTEMS**

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Accompanying CD-ROM includes all RFC files mentioned in the book, the Linux source tree and sample protocol family module programs for running, configuring, and testing the NADA protocol family discussed in Ch. 10.

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**FUTURE NETWORK SYSTEMS AND SECURITY**

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**4TH INTERNATIONAL CONFERENCE, FNSS 2018, PARIS, FRANCE, JULY 9-11, 2018, PROCEEDINGS**

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**Springer** This book constitutes the refereed proceedings of the 4th International Conference on Future Network Systems and Security, FNSS 2018, held in Paris, France, in July 2018. The 14 full papers and two short papers presented were carefully reviewed and selected from 39 submissions. The papers are organized in topical sections on secure design and verification; security, privacy and ethics; big data and applications of future network systems.