

Smarter Homes How Technology Has Changed Your Home Life

Who benefits from smart technology? Whose interests are served when we trade our personal data for convenience and connectivity? Smart technology is everywhere: smart umbrellas that light up when rain is in the forecast; smart cars that relieve drivers of the drudgery of driving; smart toothbrushes that send your dental hygiene details to the cloud. Nothing is safe from smartification. In *Too Smart*, Jathan Sadowski looks at the proliferation of smart stuff in our lives and asks whether the tradeoff—exchanging our personal data for convenience and connectivity—is worth it. Who benefits from smart technology? Sadowski explains how data, once the purview of researchers and policy wonks, has become a form of capital. Smart technology, he argues, is driven by the dual imperatives of digital capitalism: extracting data from, and expanding control over, everything and everybody. He looks at three domains colonized by smart technologies' collection and control systems: the smart self, the smart home, and the smart city. The smart self involves more than self-tracking of steps walked and calories burned; it raises questions about what others do with our data and how they direct our behavior—whether or not we want them to.

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The smart home collects data about our habits that offer business a window into our domestic spaces. And the smart city, where these systems have space to grow, offers military-grade surveillance capabilities to local authorities. Technology gets smart from our data. We may enjoy the conveniences we get in return (the refrigerator says we're out of milk!), but, Sadowski argues, smart technology advances the interests of corporate technocratic power—and will continue to do so unless we demand oversight and ownership of our data.

This Special Issue presents the recent advances in sensor technologies for smart homes, including fiber Bragg grating (FBG) sensors for detecting the presence and number of occupants, the Internet of things for monitoring CO₂ concentration, and designing a novel eye-tracking system for monitoring and controlling a smart home, and infrared thermal sensors for fall detection. Such new explorations are pushing the boundary of sensing technologies and, thus, will have more profound implications for the future smart home. Advanced machine learning and data mining algorithms have been proposed to address sensor failure, appliance identification, and human activity recognition in a home environment. These results will enable a promising, sustainable deployment of sensing technologies. A novel multi-agent gamification system is proposed for managing tasks between household members and between

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families, which demonstrate another dimension of future smart home application. This Special Issue concludes with a review on sensors for human activity recognition. This work paves the roadmap for deploying smart home systems in different socioeconomic contexts. The whole Special Issue has significantly helped to shape our understanding of the strength, implications, and barriers of deploying long-term, sustainable, sensor technologies for smart homes.

GPS-embedded clothing for finding children or skiers when they are lost, bio-monitoring smart shirts, and vests that monitor a patient's vital signs are no longer science fiction but science fact. It is quite likely that within 20 or 30 years, computers, telephones, and televisions will be a part of our intimate clothing. Covering the whole design cycle of smart clothes, *Smart Clothing: Technology and Applications* examines applications for the general public and highlights the important human factors aspects that make products not only usable but marketable. The book discusses the state of the art in smart clothing technology and applications. The chapters address usability and human aspects relevant to the manufacture and sale of such products and detail the evolving and increasingly wide-ranging applications in fields such as information technology, healthcare, and entertainment. They also cover technology topics

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including interface, communication, energy supply, data management, processors, and actuators. Discussions of packaging and interconnection, shape memory alloy, and design and modeling of electronic textile applications round out the coverage. With technology news blaring headlines such as Smart Clothing Coming Soon to Your Galaxy and Futuristic Fashions Will Fight Our Health Scares, can clothing that communicates with your washer and dryer be far behind? It is not enough to understand the technology, you must also grasp the human factor aspects. Identifying the challenges and potential benefits of smart clothing from both perspectives, this book provides integrated coverage that establishes the need for methods significantly different from traditional ones. Its up-to-date coverage allows you to visualize trends and provides a glimpse into the future.

Winner, Bronze Award, APEX 2018 and 2018

INDIES Book of the Year Honorable Mention/Health

This full-color introduction to the smart home has been written from the ground up with one audience in mind: seniors. No ordinary "beginner's book," *My Smart Home for Seniors* approaches every topic from a 50+ person's point of view, using meaningful, realistic examples. Full-color, step-by-step tasks—in legible print—walk you through making your home safer and easier to live in using smart technology. Learn how to:

- Control your home's lighting with

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smart bulbs and switches • Make your home more secure with smart doorbells, door locks, and security cameras • Automatically control your home's temperature with a smart thermostat • Make cooking and cleaning easier with smart appliances • Use voice commands or your smart phone to control your smart devices • Use If This Then That (IFTTT) to make your smart devices interact with each other automatically • Get smart about the security and privacy concerns of smart devices • Set up your smart devices and get them to work with one another • Compare and select the best smart hub for your smart home needs • Learn to use Amazon Alexa™, Google Home™ and other voice-activated devices, as well as Apple's HomeKit™ on the iPhone, to make your smart devices work together

Essay from the year 2016 in the subject Computer Science - Internet, New Technologies, , language: English, abstract: This paper aims at presenting the Smart Home concept. This paper describes in detail - a) The Smart Home concept b) Our concepts to model the Smart Home using smart devices c) Adaptive decision making using artificial intelligence and big data d) Large scale implementation of this concept to model a Smart Locality, Smart City up to the level of Smart country. Contrary to the other projects, this work is directed towards a sensors approach and an ontology modelling of the Smart Home. This work has the originality to take into

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account the real heterogeneity of information present in a habitat. This paper is a good overview to present what is a Smart Home and which are the necessary hardware and software components to make a Smart Home. Smart Home concept has been implemented using smart devices, adaptive decision making using artificial intelligence and big data. The work is directed towards a sensor approach and ontology modelling. This work focuses towards large scale implementation for smart systems.

This guide clarifies the implementation of smart home solutions and provides good-practice guidance in line with current regulations. It focuses on progressive technology solutions, providing a practical basis for the high-level work taking place in this industry.

How the Internet of Things will change your life: all you need to know, in plain English! The Internet of Things (IoT) won't just connect people: It will connect "smart" homes, appliances, cars, offices, factories, cities... the world. You need to know what's coming: It might just transform your life. Now, the world's #1 author of beginning technology books has written the perfect introduction to IoT for everyone. Michael Miller shows how connected smart devices will help people do more, do it smarter, do it faster. He also reveals the potential risks—to your privacy, your freedom, and maybe your life. Make no mistake: IoT is coming quickly. Miller

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explains why you care, helps you use what's already here, and prepares you for the world that's hurtling toward you. --What is IoT? How does it work? How will it affect me? --What's realistic, and what's just hype? --How smart is my "smart TV" really? (And, is it watching me?) --Can smart IoT devices make me healthier? --Will smart appliances ever be useful? --How much energy could I save with a smart home? --What's the future of wearable tech? --When will I have a self-driving car? --When will I have a nearly self-driving car? (Hint: Surprisingly soon.) --Is IoT already changing the way I shop? --What's the future of drones, at war and in my neighborhood? --Could smart cities lower my taxes? --Who gets the data my devices are collecting? --How can I profit from the Internet of Things? --What happens when the whole world is connected? --Will I have any privacy left at all? Imagine you arrive at school and realize you forgot to feed the dog. No problem. Pull out your phone and command the dog dish to dispense a serving of food. That's all there is to it - if you live a smart home. What once sounded like science fiction is now a reality for some families. People use smart phones and other devices to lock doors, turn on lights, close window shades, and check to see how much milk they have in the fridge. Find out how this technology works and what the future holds for smart homes. Thanks to rapid technological developments in terms of

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Computational Intelligence, smart tools have been playing active roles in daily life. It is clear that the 21st century has brought about many advantages in using high-level computation and communication solutions to deal with real-world problems; however, more technologies bring more changes to society. In this sense, the concept of smart cities has been a widely discussed topic in terms of society and Artificial Intelligence-oriented research efforts. The rise of smart cities is a transformation of both community and technology use habits, and there are many different research orientations to shape a better future. The objective of this book is to focus on Explainable Artificial Intelligence (XAI) in smart city development. As recently designed, advanced smart systems require intense use of complex computational solutions (i.e., Deep Learning, Big Data, IoT architectures), the mechanisms of these systems become 'black-box' to users. As this means that there is no clear clue about what is going on within these systems, anxieties regarding ensuring trustworthy tools also rise. In recent years, attempts have been made to solve this issue with the additional use of XAI methods to improve transparency levels. This book provides a timely, global reference source about cutting-edge research efforts to ensure the XAI factor in smart city-oriented developments. The book includes both positive and negative outcomes, as well as future insights and the societal and technical aspects of XAI-based smart city research efforts. This book contains nineteen contributions beginning with a presentation of the background of XAI techniques and sustainable smart-

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city applications. It then continues with chapters discussing XAI for Smart Healthcare, Smart Education, Smart Transportation, Smart Environment, Smart Urbanization and Governance, and Cyber Security for Smart Cities.

This book describes an innovative approach to the interaction between humans and a smart environment; an attempt to get a smart home to understand intuitive, multi-modal, human-centred communication. State of the art smart homes, like other “smart” technology, tend to demand that the human user must adapt herself to the needs of the system. The hunt for a truly user-centred, truly intuitive system has long proven to be beyond the grasp of current technology. When humans speak with one another, we are multimodal. Our speech is supplemented with gestures, which serve as a parallel stream of information, reinforcing the meaning of our words. Drawing on well-established protocols in engineering and psychology, and with no small amount of inspiration from a particular nonsense poem, we have successfully concluded that hunt. This book describes the efforts, undertaken over several years, to design, implement, and test a model of interaction that allows untrained individuals to intuitively control a complex series of networked and embedded systems. The theoretical concepts are supported by a series of experimental studies, showing the advantages of the novel approach, and pointing towards future work that would facilitate the deployment of this concept in the real world.

Authored by an accredited expert in the field, this timely

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new resource introduces technologies that can be used for advanced smart buildings, including renewable power, communications, indoor positioning, security management, and control systems. This book speaks to the innovation of advanced technology, particularly information technology within the building industry today and explores the potential benefits and issues with advanced technology and its applications and presents practical real-world case studies. This book demonstrates that the penetration of information technology in the building industry is a long term, major development that will affect homes, offices, and other buildings. Smart technology will impact the automation and communications in existing and new building systems.

Smart Environments contains contributions from leading researchers, describing techniques and issues related to developing and living in intelligent environments.

Reflecting the multidisciplinary nature of the design of smart environments, the topics covered include the latest research in smart environment philosophical and computational architecture considerations, network protocols for smart environments, intelligent sensor networks and powerline control of devices, and action prediction and identification.

The Future Home in the 5G Era looks at new hyper-connected home environments in which devices and apps will work together seamlessly to respond to and anticipate customers' needs, all with maximum security and privacy. Enabled by 5G, AI, and other new technologies such as eSim and edge computing, the

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Future Home's powerful service ecosystems will be a quantum leap from today's fragmented smart home technology, effectively extending the boundaries of the home even beyond the traditional bounds of the physical, to ultimately make consumers feel 'at home' anywhere. This will create tremendous opportunities for businesses including communication service providers (CSPs), device manufacturers and app developers, as well as those providing services in diverse sectors such as entertainment, health and social care, education, retail, and more. The Future Home in the 5G Era combines original research from Accenture with practical insights and examples, showing how intelligently orchestrated Future Homes can yield economic success for businesses. Written by leaders of strategy and technology consultancy at Accenture, the authors have vast industry experience leading major units of Fortune 500 companies and start-ups. This book looks at how businesses, especially CSPs, can overcome the challenges and capture the multi-billion-dollar Future Home market by putting strategic emphasis on excellent customer experiences, developing new business models, and turning their organizations into competitively agile platform-based innovators. For business leaders in any sector relevant to the Future Home, this book is an indispensable and value-creating guide.

Provides the foundations and principles needed for addressing the various challenges of developing smart cities Smart cities are emerging as a priority for research and development across the world. They open up significant opportunities in several areas, such as

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economic growth, health, wellness, energy efficiency, and transportation, to promote the sustainable development of cities. This book provides the basics of smart cities, and it examines the possible future trends of this technology. *Smart Cities: Foundations, Principles, and Applications* provides a systems science perspective in presenting the foundations and principles that span multiple disciplines for the development of smart cities. Divided into three parts—foundations, principles, and applications—*Smart Cities* addresses the various challenges and opportunities of creating smart cities and all that they have to offer. It also covers smart city theory modeling and simulation, and examines case studies of existing smart cities from all around the world. In addition, the book: Addresses how to develop a smart city and how to present the state of the art and practice of them all over the world Focuses on the foundations and principles needed for advancing the science, engineering, and technology of smart cities—including system design, system verification, real-time control and adaptation, Internet of Things, and test beds Covers applications of smart cities as they relate to smart transportation/connected vehicle (CV) and Intelligent Transportation Systems (ITS) for improved mobility, safety, and environmental protection *Smart Cities: Foundations, Principles, and Applications* is a welcome reference for the many researchers and professionals working on the development of smart cities and smart city-related industries.

The life and times of the Smart Wife--feminized digital assistants who are friendly and sometimes flirty,

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occasionally glitchy but perpetually available. Meet the Smart Wife--at your service, an eclectic collection of feminized AI, robotic, and smart devices. This digital assistant is friendly and sometimes flirty, docile and efficient, occasionally glitchy but perpetually available. She might go by Siri, or Alexa, or inhabit Google Home. She can keep us company, order groceries, vacuum the floor, turn out the lights. A Japanese digital voice assistant--a virtual anime hologram named Hikari Azuma--sends her "master" helpful messages during the day; an American sexbot named Roxxy takes on other kinds of household chores. In *The Smart Wife*, Yolande Strengers and Jenny Kennedy examine the emergence of digital devices that carry out "wifework"--domestic responsibilities that have traditionally fallen to (human) wives. They show that the principal prototype for these virtual helpers--designed in male-dominated industries--is the 1950s housewife: white, middle class, heteronormative, and nurturing, with a spick-and-span home. It's time, they say, to give the Smart Wife a reboot. What's wrong with preferring domestic assistants with feminine personalities? We like our assistants to conform to gender stereotypes--so what? For one thing, Strengers and Kennedy remind us, the design of gendered devices re-inscribes those outdated and unfounded stereotypes. Advanced technology is taking us backwards on gender equity. Strengers and Kennedy offer a Smart Wife "manifesta," proposing a rebooted Smart Wife that would promote a revaluing of femininity in society in all her glorious diversity. Smart homes, home automation and ambient-assisted

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living are terms used to describe technological systems that enrich our living environment and provide means to support care, facilitate well-being and improve comfort. This handbook provides an overview of the domain from the perspective of health care and technology. In Part 1, we set out to describe the demographic changes in society, including ageing and diseases and impairments which lead to the needs for technological solutions. In Part 2, we describe the technological solutions, ranging from sensor-based networks, components, to communication protocols that are used in the design of smart homes. We also deal with biomedical features which can be measured and services that can be delivered to end-users as well as the use of social robots. In Part 3, we present best practices in the field. These best practices mainly focus on existing projects in Europe, the USA and Asia, in which people receive help through dedicated technological solutions being part of the continuum of the home environment and care. A revelatory and timely look at how technology boosts our cognitive abilities—making us smarter, more productive, and more creative than ever. It's undeniable—technology is changing the way we think. But is it for the better? Amid a chorus of doomsayers, Clive Thompson delivers a resounding “yes.” In *Smarter Than You Think*, Thompson shows that every technological innovation—from the written word to the printing press to the telegraph—has provoked the very same anxieties that plague us today. We panic that life will never be the same, that our attentions are eroding, that culture is being trivialized. But, as in the past, we adapt—learning to use the new and retaining what is good of the old. *Smarter Than You Think* embraces and extols this transformation, presenting an

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exciting vision of the present and the future.

Unexpected ways that individuals adapt technology to reclaim what matters to them, from working through conflict with smart lights to celebrating gender transition with selfies. We have been warned about the psychological perils of technology: distraction, difficulty empathizing, and loss of the ability (or desire) to carry on a conversation. But our devices and data are woven into our lives. We can't simply reject them. Instead, Margaret Morris argues, we need to adapt technology creatively to our needs and values. In *Left to Our Own Devices*, Morris offers examples of individuals applying technologies in unexpected ways—uses that go beyond those intended by developers and designers. Morris examines these kinds of personalized life hacks, chronicling the ways that people have adapted technology to strengthen social connection, enhance well-being, and affirm identity. Morris, a clinical psychologist and app creator, shows how people really use technology, drawing on interviews she has conducted as well as computer science and psychology research. She describes how a couple used smart lights to work through conflict; how a woman persuaded herself to eat healthier foods when her photographs of salads garnered “likes” on social media; how a trans woman celebrated her transition with selfies; and how, through augmented reality, a woman changed the way she saw her cancer and herself. These and the many other “off-label” adaptations described by Morris cast technology not just as a temptation that we struggle to resist but as a potential ally as we try to take care of ourselves and others. The stories Morris tells invite us to be more intentional and creative when left to our own devices.

Using clear and accessible language this book examines the growing field of ‘smart technology’ for the home. The author first introduces the field before exploring the various

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background issues, including how the home differs from other environments. He then shows how these background issues affect the design and usability of these technologies. A detailed case study looks at the use of handheld and wearable digital technology in sheltered housing. The last section examines what it is like to live in a smart home and why they have so far failed to reach the levels of success originally predicted. Invaluable reading for anybody interested in designing smart technologies for the home.

Residential Wiring and Smart Home Technology focuses on the principles, installation, and operation of wired and wireless residential electrical and electronic systems. This edition provides expanded material on utility power generation and distribution, electrical safety, and NEC® guidelines. New topics include smart home infrastructure, security and fire alarm systems, and energy management applications supported by the smart grid. A lifestyle applications chapter covers improvements to convenience and comfort provided by smart home technology.

Modelling, simulation and performance evaluation of wired smart home technology controlled by wireless mobile device
Research Paper:- University of Greenwich, London, United Kingdom, 2012

This book contains a collection of high-quality papers describing the results of relevant investigations and cutting-edge technologies, aimed at improving key aspects of real life, including major challenges such as the development of smart cities, smart buildings, smart grids, and the reduction of the impact of human activities on the environment.

Sustainability requires the use of green technologies and techniques and good practices. Artificial intelligence seems to be an appropriate approach to optimize the use of resources. The main focus of this book is the dissemination of novel and innovative technologies, techniques and applications of

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artificial intelligence, computing and information and communications technologies, and new digital services such as digital marketing, smart tourism, smart agriculture, green and renewable energy sources. Besides, this book focuses on nurturing energy trends including renewable energies, smart grids, human activity impact, communication, behaviour, and social development, and quality of life improvement fields based on the innovative use of sensors, big data and the Internet of things (IoT), telecommunications and machine learning.

This book presents an innovative systems approach towards the idea of a smarter world, with advanced and sustainable social infrastructures, facilities and services. It develops a novel systems approach for society-wide systems where interdependent systems encompassing transportation, energy, communication, water, sewerage, logistics, education, disaster prevention, medical care and welfare are integrated to form a 'System of Systems (SoS). Written by leading system scientists and technology creators, it introduces state-of-the-art concepts of and methodologies for systems approaches towards SoS as well as their practical applications, discussing the planning, design and management challenges in their implementation and the potential impact on societies and the environment. The volume will be of interest to systems engineers, system integrators, and researchers in related engineering fields, as well as government policymakers.

This book explores the nexus of Sustainability and Information Communication Technologies that are rapidly changing the way we live, learn, and do business. The monumental amount of energy required to power the Zeta byte of data traveling across the globe's billions of computers and mobile phones daily cannot be overstated. This ground-breaking reference examines the possibility that our evolving

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technologies may enable us to mitigate our global energy crisis, rather than adding to it. By connecting concepts and trends such as smart homes, big data, and the internet of things with their applications to sustainability, the authors suggest that emerging and ubiquitous technologies embedded in our daily lives may rightfully be considered as enabling solutions for our future sustainable development. Examine the history of smart homes, how technology shapes our lives, and ways you can think about the home when developing new products. This book presents the opportunities in the homespace that will come from understanding the history and multiple players that have contributed to the development of the home in general. You'll start by breaking down the historical, societal and political context for the changes in focus of that 'smartness' from affordability, efficiency, convenience to recently experimentation. The second half of the book then reviews what current developments tell us about what our homes will look like in the next 10 years through the lens of spaces, services, appliances and behaviours in our homes. Over the past 100 years, the home has been a battleground for ideas of future living. Fueled by the electrification of cities, the move from the country to cities, post-war recovery and the development of the internet, the way we live at home (alone or with others) has changed beyond recognition. Science fiction writing, the entertainment industry, art, and modern interior design and architecture movements have also contributed to

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defining our aspirations around a future and now more present and possible 'smart' home. Smarter Homes looks at the many new and innovative products that are being developed in the consumer and industrial spaces with a copy-paste mindset based on following larger businesses, such as Amazon, Google and Apple. What You'll Learn Understand the historical context for current smart home products Review the social aspect of home product development Discover new home technologies being developed and which ones are available now Track the industry behaviors being leveraged and how they may affect longer term market trends for consumer products Who This Book Is For Everyone working in product design and development, in R&D or in trends research, as well as those interested in the IoT for the home. This book will also give product business owners ideas about what has been done before and avenues for future development.

Smart Homes in easy steps shows you how to start to take advantage of the current smart technology that is beginning to revolutionise the way in which we run our homes! The idea of a smart home – using digital devices throughout the home that can be controlled by digital voice assistants, apps, smartphones and tablets – is not a science fiction vision of the future: it is very much part of the here and now, and available to all. Also known as the

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Internet of Things (IoT), smart home devices can be used to automate tasks, save time and money, and to control devices in your home with a touch of a button – even when you are somewhere else. *Smarter Homes in easy steps* takes the mystery out of all of the elements that are required to set up a smart home: it defines a smart home and shows what is needed to make a home smart: digital voice assistants, devices and apps. Initially, the book looks at the concept of a smart home and how it is now affordable and accessible enough for it to be a serious option for any household. Then, setting up items for a smart home is covered in detail – installing the devices, and also linking them to apps and digital voice assistants for controlling them. The book then examines the digital voice assistants that can be used in the home to control smart home devices, including detailed information about using the most popular options (and their related speakers): Alexa and the Amazon Echo; Google Assistant and the Google Home; and Siri and the Apple HomePod. The book then looks at specific areas of smart home devices, including installation and setup, and how to control them once they are up and running. Some of the areas that are covered in detail include: Smart lighting Smart heating Smart security systems Smart home cameras Smart locks Smart plugs Illustrated using Amazon Echo and Alexa; Google Assistant and Google Home; Apple

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HomePod and the Home app; and Nest. Smart Homes in easy steps is not a look into the future: it is a comprehensive yet concise, step-by-step guide on how to start transforming your home right now, using this exciting and now affordable technology – for smart learning! Contents: 1. About Smart Homes 2. About Digital Voice Assistants 3. Alexa and the Amazon Echo 4. Google Assistant and Google Home 5. HomePod and the Home app 6. Using Smart Devices 7. Smart Lighting 8. Smart Heating 9. Smart Security 10. More Smart Home Options 11. Looking Forward

This is the second of a two-volume set (CCIS 434 and CCIS 435) that constitutes the extended abstracts of the posters presented during the 16th International Conference on Human-Computer Interaction, HCII 2014, held in Heraklion, Crete, Greece in June 2014 and consisting of 14 thematic conferences. The total of 1476 papers and 220 posters presented at the HCII 2014 conferences were carefully reviewed and selected from 4766 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The extended abstracts

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were carefully reviewed and selected for inclusion in this two-volume set. This volume contains posters' extended abstracts addressing the following major topics: social media and social networks; learning and education; design for all; accessibility and assistive environments; design for aging; games and exergames; health and well-being; ergonomics and safety; HCI in business, tourism and transport; human-human and human-agent communication; user experience case studies.

This book addresses emerging issues in usability, interface design, human-computer interaction, user experience and assistive technology. It highlights research aimed at understanding human interactions with products, services and systems and focuses on finding effective approaches for improving the user experience. It also discusses key issues in designing and providing assistive devices and services for individuals with disabilities or impairment, offering them support with mobility, communication, positioning, environmental control and daily living. The book covers modeling as well as innovative design concepts, with a special emphasis on user-centered design, and design for specific populations, particularly the elderly. Further topics include virtual reality, digital environments, gaming, heuristic evaluation and forms of device interface feedback (e.g. visual and haptic). Based on the AHFE 2021 Conferences on Usability and User Experience,

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Human Factors and Wearable Technologies, Human Factors in Virtual Environments and Game Design, and Human Factors and Assistive Technology, held virtually on 25-29 July, 2021, from USA, this book provides academics and professionals with an extensive source of information and a timely guide to tools, applications and future challenges in these fields.

Independent living with smart technologies Smart Technology for Aging, Disability, and Independence: The State of the Science brings together current research and technological developments from engineering, computer science, and the rehabilitation sciences, detailing how its applications can promote continuing independence for older persons and those with disabilities. Leading experts from multiple disciplines worldwide have contributed to this volume, making it the definitive resource. The text begins with a thorough introduction that presents important concepts, defines key terms, and identifies demographic trends at work. Using detailed product descriptions, photographs and illustrations, and case studies, subsequent chapters discuss cutting-edge technologies, including: * Wearable systems * Human-computer interactions * Assisted vision and hearing * Smart wheelchairs * Handheld devices and smart phones * Visual sensors * Home automation * Assistive robotics * In-room monitoring systems * Telehealth After considering specific high-technology

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solutions, the text examines recent trends in other critical areas, such as assistive technologies, driving, transportation and community mobility, home modifications and design, and changing standards of elder care. Students and professionals in the rehabilitation sciences, healthcare providers, researchers in computer science and engineering, and non-expert readers will all appreciate this text's thorough coverage and clear presentation of the state of the science.

The old Internet typically connected personal computers. But a radically new Internet is emerging. Some call it an "Internet of Things" (IoT) or "Internet of Everything" (IoE). The IoT won't just connect people: it'll connect "smart" homes, appliances, cars, aircraft (a.k.a. drones)... offices, factories, cities... the world. By some estimates, the IoE will explode into a \$19 trillion market in just a few years. If that happens... when that happens... it will transform your life. ¶ You need to know what's coming. But, until now, most guides to the Internet of Everything have been written for technical experts. Now, the world's #1 author of beginning technology books has written the perfect introduction for every consumer and citizen. In *The Internet of Things*, Michael Miller reveals how a new generation of autonomously connected smart devices is emerging, and how it will enable people and devices to do more things, more intelligently, and more rapidly. ¶ Miller demystifies

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every type of smart device, both current and future. Each chapter ends with a special "...and You" section, offering up-to-the-minute advice for using today's IoT technologies or preparing for tomorrow's. You'll also discover the potential downsides and risks associated with intelligent, automatic interaction. When all your devices can communicate with each other (and with the companies that sell and monitor them), how private is your private life? Do the benefits outweigh the risks? And what does a connected world do when the connections suddenly go down? Packed with scenarios and insider interviews, *The Internet of Things* makes our future utterly, vividly real.

What makes something "smart?" In the *Exploring the Internet of Things* series, readers discover how inanimate objects, from watches to home speakers to even t-shirts, help people get things done better, faster, and smarter. In *Smart Homes*, readers will learn the practical application, technological and future advancements, and innovation of IoT in today's homes. Includes informative sidebars, data-focused text, and 21st Century Skills backmatter content.

Your voice as biometric data, and how marketers are using it to manipulate you Only three decades ago, it was inconceivable that virtually entire populations would be carrying around wireless phones wherever they went, or that peoples' exact locations could be

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tracked by those devices. We now take both for granted. Even just a decade ago the idea that individuals' voices could be used to identify and draw inferences about them as they shopped or interacted with retailers seemed like something out of a science fiction novel. Yet a new business sector is emerging to do exactly that. The first in-depth examination of the voice intelligence industry, *The Voice Catchers* exposes how artificial intelligence is enabling personalized marketing and discrimination through voice analysis. Amazon and Google have numerous patents pertaining to voice profiling, and even now their smart speakers are extracting and using voice prints for identification and more. Customer service centers are already approaching every caller based on what they conclude a caller's voice reveals about that person's emotions, sentiments, and personality, often in real time. In fact, many scientists believe that a person's weight, height, age, and race, not to mention any illnesses they may have, can also be identified from the sound of that individual's voice. Ultimately not only marketers, but also politicians and governments, may use voice profiling to infer personal characteristics for selfish interests and not for the benefit of a citizen or of society as a whole. Leading communications scholar Joseph Turow places the voice intelligence industry in historical perspective, explores its contemporary developments, and offers a clarion call for regulating

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this rising surveillance regime.

Why technology is not an end in itself, and how cities can be “smart enough,” using technology to promote democracy and equity. Smart cities, where technology is used to solve every problem, are hailed as futuristic urban utopias. We are promised that apps, algorithms, and artificial intelligence will relieve congestion, restore democracy, prevent crime, and improve public services. In *The Smart Enough City*, Ben Green warns against seeing the city only through the lens of technology; taking an exclusively technical view of urban life will lead to cities that appear smart but under the surface are rife with injustice and inequality. He proposes instead that cities strive to be “smart enough”: to embrace technology as a powerful tool when used in conjunction with other forms of social change—but not to value technology as an end in itself. In a technology-centric smart city, self-driving cars have the run of downtown and force out pedestrians, civic engagement is limited to requesting services through an app, police use algorithms to justify and perpetuate racist practices, and governments and private companies surveil public space to control behavior. Green describes smart city efforts gone wrong but also smart enough alternatives, attainable with the help of technology but not reducible to technology: a livable city, a democratic city, a just city, a responsible city, and an innovative city. By recognizing the complexity of urban life rather than merely seeing the city as something to optimize, these *Smart Enough Cities* successfully incorporate technology into a holistic vision of justice and equity. *Smart Cities and Homes: Key Enabling Technologies* explores the fundamental principles and concepts of the key enabling technologies for smart cities and homes, disseminating the latest research and development efforts in the field through the use of numerous case studies and

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examples. Smart cities use digital technologies embedded across all their functions to enhance the wellbeing of citizens. Cities that utilize these technologies report enhancements in power efficiency, water use, traffic congestion, environmental protection, pollution reduction, senior citizens care, public safety and security, literacy rates, and more. This book brings together the most important breakthroughs and advances in a coherent fashion, highlighting the interconnections between the works in different areas of computing, exploring both new and emerging computer networking systems and other computing technologies, such as wireless sensor networks, vehicle ad hoc networks, smart grids, cloud computing, and data analytics and their roles in creating environmentally friendly, secure, and prosperous cities and homes. Intended for researchers and practitioners, the book discusses the pervasive and cooperative computing technologies that will perform a central role for handling the challenges of urbanization and demographic change. Includes case studies and contributions from prominent researchers and practitioners from around the globe Explores the latest methodologies, theories, tools, applications, trends, challenges, and strategies needed to build smart cities and homes from the bottom up Provides a pedagogy that includes PowerPoint slides, key terms, and a comprehensive bibliography

This book constitutes the joint refereed proceedings of the 14th International Conference on Next Generation Wired/Wireless Advanced Networks and Systems, NEW2AN 2014, and the 7th Conference on Internet of Things and Smart Spaces, ruSMART 2014, held in St. Petersburg, Russia, in August 2014. The total of 67 papers was carefully reviewed and selected for inclusion in this book. The 15 papers selected from ruSMART are organized in topical sections named: smart spaces core technologies, smart

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spaces for geo-location and e-tourism apps, smart space supporting technologies, and video solutions for smart spaces. The 52 papers from NEW2AN deal with the following topics: advances in wireless networking, ad hoc networks and enhanced services, sensor- and machine-type communication, networking architectures and their modeling, traffic analysis and prediction, analytical methods for performance evaluation, materials for future communications, generation and analysis of signals, business aspects of networking, progress on upper layers and implementations, modeling methods and tools, techniques, algorithms, and control problems, photonics and optics, and signals and their processing.

Internet of Things (IoT) is a recent technology paradigm that creates a global network of machines and devices that are capable of communicating with each other. Security cameras, sensors, vehicles, buildings, and software are examples of devices that can exchange data between each other. IoT is recognized as one of the most important areas of future technologies and is gaining vast recognition in a wide range of applications and fields related to smart homes and cities, military, education, hospitals, homeland security systems, transportation and autonomous connected cars, agriculture, intelligent shopping systems, and other modern technologies. This book explores the most important IoT automated and smart applications to help the reader understand the principle of using IoT in such applications.

This book covers a variety of smart IoT applications for industry and research. For industry, the book is a guide for considering the real-time aspects of automation of application domains. The main topics covered in the industry section include real-time tracking and navigation, smart transport systems and application for GPS domains, modern electric grid control for the electricity industry, IoT prospectives for

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modern society, IoT for modern medical science, and IoT automation for Industry 4.0. The book then provides a summary of existing IoT research that underlines enabling technologies, such as fog computing, wireless sensor networks, data mining, context awareness, real-time analytics, virtual reality, and cellular communications. The book pertains to researchers, outcome-based academic leaders, as well as industry leaders. Covers real-time problems for industry along with unique research methodologies for furthering the field; Includes authentic research datasets for simulated applications in IoT; Features topics such as IoT for retail and supply chain management, smart health, and smart electricity & energy management. Smarter HomesHow Technology Will Change Your Home LifeApress

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