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This book presents state-of-the-art research, challenges and solutions in the area of human-robot collaboration (HRC) in manufacturing. It enables readers to better understand the dynamic behaviour of manufacturing processes, and gives more insight into on-demand adaptive control techniques for industrial robots. With increasing complexity and dynamism in today's manufacturing practice, more precise, robust and practical approaches are needed to support real-time shop-floor operations. This book presents a collection of recent developments and innovations in this area, relying on a wide range of research efforts. The book is divided into five parts. The first part presents a broad-based review of the key areas of HRC, establishing a common ground of understanding in key aspects. Subsequent chapters focus on selected areas of HRC subject to intense recent interest. The second part discusses human safety within HRC. The third, fourth and fifth parts provide in-depth views of relevant methodologies and algorithms. Discussing dynamic planning and monitoring, adaptive control and multi-modal decision making, the latter parts facilitate a better understanding of HRC in real situations. The balance between scope and depth, and theory and applications, means this book appeals to a wide readership, including academic researchers, graduate students, practicing engineers, and those within a variety of roles in manufacturing sectors.

This book constitutes the proceedings of the First International Conference on Interactive Collaborative Robotics, ICR 2016, held in Budapest, Hungary, in August 2016. The 29 papers presented in this volume were carefully reviewed and selected from 48 submissions. A comprehensive text on the operation and control of power generation and transmission systems In the ten years since Allen J. Wood and Bruce F. Wollenberg presented their comprehensive introduction to the engineering and economic factors involved in operating and controlling power generation systems in electric utilities, the electric power industry has undergone unprecedented change. Deregulation, open access to transmission systems, and the birth of independent power producers have altered the structure of the industry, while technological advances have created a host of new opportunities and challenges. In *Power Generation, Operation, and Control, Second Edition*, Wood and Wollenberg bring professionals and students alike up to date on the nuts and bolts of the field. Continuing in the tradition of the first edition, they offer a practical, hands-on guide to theoretical developments and to the application of advanced operations research methods to realistic electric power engineering problems. This one-of-a-kind text also addresses the interaction between human and economic factors to prepare readers to make real-world decisions that go beyond the limits of mere technical calculations. The Second Edition features vital new material, including: * A computer disk developed by the authors to help readers solve complicated problems * Examination of Optimal Power Flow (OPF) * Treatment of unit commitment expanded to incorporate the Lagrange relaxation technique * Introduction to the use of bounding techniques and other contingency selection methods * Applications suited to the new, deregulated systems as well as to the traditional, vertically organized utilities company Wood and Wollenberg draw upon nearly 30 years of classroom testing to provide valuable data on operations research, state estimation methods, fuel scheduling techniques, and more. Designed for clarity and ease of use, this invaluable reference prepares industry professionals and students to meet the future challenges of power generation, operation, and control.

Social robots not only work with humans in collaborative workspaces – we meet them in shopping malls and even more personal settings like health and care. Does this imply they should become more human, able to interpret and adequately respond to human emotions? Do we want them to help elderly people? Do we want them to support us when we are old ourselves? Do we want them to just clean and keep things orderly – or would we accept them helping us to go to the toilet, or even feed us if we suffer from Parkinson's disease? The answers to these questions differ from person to person. They depend on cultural background, personal experiences – but probably most of all on the robot in question. This book covers the phenomenon of social robots from the historic roots to today's best practices and future perspectives. To achieve this, we used a hands-on, interdisciplinary approach, incorporating findings from computer scientists, engineers, designers, psychologists, doctors, nurses, historians and many more. The book also covers a vast spectrum of applications, from collaborative industrial work over education to sales. Especially for developments with a high societal impact like robots in health and care settings, the authors discuss not only technology, design and usage but also ethical aspects. Thus this book creates both a compendium and a guideline, helping to navigate the design space for future developments in social robotics.

Authored by an internationally recognized expert in the field, this expanded, timely second edition addresses all the critical information security management issues needed to help businesses protect their valuable assets. Professionals learn how to manage business risks, governance and compliance. This updated resource provides a clear guide to ISO/IEC 27000 security standards and their implementation, focusing on the recent ISO/IEC 27001. Moreover, readers are presented with practical and logical information on standard accreditation and certification. From information security management system (ISMS) business context, operations, and risk, to leadership and support, this invaluable book is your one-stop resource on the ISO/IEC 27000 series of standards.

This book discusses the latest advances in people-centered design, operation, and management of broadly defined advanced manufacturing systems and processes. It reports on human factors issues related to various research areas such as intelligent manufacturing technologies, web-based manufacturing services, digital manufacturing worlds, and manufacturing knowledge support systems, as well as other contemporary manufacturing environments. The book covers an extensive range of applications of human factors in the manufacturing industry: from work design, supply chains, evaluation of work systems, and social and organization design, to manufacturing systems, simulation and visualization, automation in manufacturing, and many others. Special emphasis is given to computer aided manufacturing technologies supporting enterprises, both in general and in the manufacturing industry in particular, such as knowledge-based systems, virtual reality, artificial intelligence methods, and many more. Based on the AHFE 2016 International Conference on Human Aspects of Advanced Manufacturing, held on July 27-31, 2016, in Walt Disney World®, Florida, USA, the book provides readers with a timely snapshot of the enterprises of the future and a set of cutting-edge technologies and methods for building innovative, human-centered, and computer-integrated manufacturing systems.

This book examines various applications of electron spin resonance spectroscopy (ESR) in medicine, covering topics such as interactions between blood and nanoparticles, physical intricacy of HbNO complexes, parasitic diseases, oxidative stress measurement, polymerization of resinous materials used in dentistry, tooth dosimetry and dermatological applications. Instead of providing mathematical details, it focuses on the applications and data interpretation of ESR as an emerging tool. This book is intended for students and researchers interested in the field of ESR applications in translational research and medicine.

Celebrating the homes, studios, & workshops of a famed art colony, as well as their builders' lifestyles. Captured in stunning color photos are the plain & poetic, beautiful & exotic, funky & rustic shelters & workplaces of generations of creative residents of that unique Catskill mountain village. Main thesis: great homes can still be built cheaply by anyone with vision, determination, & some honest toil. The Woodstock House, featured herein, is almost always owner designed & built, using local woods & quarry materials, & salvage from old farms, mills, logging yards, & dumps. Recycling, self-sufficiency, & communal pitching-in before they became fashionable are all shown here. Gorgeous images permanently record the ingenuity, care, & craftsmanship of the artists & builders & one marvels at how they keep the elements off their easels, kilns, computers, table saws, pottery wheels, stained glass, word processors, etc... In its original edition a best-seller (150,000 copies), reviewed in the N.Y. Times, Rolling Stone, & excerpted in major magazines & museum shows in the U.S., Europe & Japan, this new computer-enhanced edition is updated & timed to the renaissance of the Woodstock Idea, not just as expressed in the famous rock festivals,

but the more enduring aspects coming across the generations & going forward positively into the future. To order: PDS, 6893 Sullivan Road, Grawn, MI 49637. Phone: 616-276-5196, FAX: 616-276-5197, Orders: 1-800-345-0096.

Handbook of Respiratory Care, Third Edition is included in the 2015 edition of the essential collection of Doody's Core Titles. Handbook of Respiratory Care, Third Edition of this comprehensive resource compiles a wide variety of data relevant to the care of patients with respiratory disorders as well as current research in pulmonary physiology. Data from many sources in the fields of medicine, pharmacology, physics, mathematics, and engineering are brought together in this handy reference. This valuable, time-saving resource provides concise, accurate data not found in other textbooks. Handbook of Respiratory Care serves as reference for multiple topics such as commonly and not commonly used equations in pulmonary, cardiovascular and respiratory care. It also provides information on commonly used scores in research as well as the methods and equations used to compute them."

This open access book explores the concept of Industry 4.0, which presents a considerable challenge for the production and service sectors. While digitization initiatives are usually integrated into the central corporate strategy of larger companies, smaller firms often have problems putting Industry 4.0 paradigms into practice. Small and medium-sized enterprises (SMEs) possess neither the human nor financial resources to systematically investigate the potential and risks of introducing Industry 4.0. Addressing this obstacle, the international team of authors focuses on the development of smart manufacturing concepts, logistics solutions and managerial models specifically for SMEs. Aiming to provide methodological frameworks and pilot solutions for SMEs during their digital transformation, this innovative and timely book will be of great use to scholars researching technology management, digitization and small business, as well as practitioners within manufacturing companies.

This third edition of the Coordinated Portfolio Investment Survey Guide has been prepared to assist economies that participate or are preparing to participate in the Coordinated Portfolio Investment Survey (CPIS). It builds on and updates the second edition of the CPIS Guide (2002) to reflect the adoption of the Balance of Payments and International Investment Position Manual, sixth edition (BPM6) as the standard framework for compiling cross-border position statistics.

This book is open access under a CC BY 4.0 license. This book presents results relevant in the manufacturing research field, that are mainly aimed at closing the gap between the academic investigation and the industrial application, in collaboration with manufacturing companies. Several hardware and software prototypes represent the key outcome of the scientific contributions that can be grouped into five main areas, representing different perspectives of the factory domain: 1) Evolutionary and reconfigurable factories to cope with dynamic production contexts characterized by evolving demand and technologies, products and processes. 2) Factories for sustainable production, asking for energy efficiency, low environmental impact products and processes, new de-production logics, sustainable logistics. 3) Factories for the People who need new kinds of interactions between production processes, machines, and human beings to offer a more comfortable and stimulating working environment. 4) Factories for customized products that will be more and more tailored to the final user's needs and sold at cost-effective prices. 5) High performance factories to yield the due production while minimizing the inefficiencies caused by failures, management problems, maintenance. This book is primarily targeted to academic researchers and industrial practitioners in the manufacturing domain.

Cognitive Hyperconnected Digital Transformation provides an overview of the current Internet of Things (IoT) landscape, ranging from research, innovation and development priorities to enabling technologies in a global context. It is intended as a standalone book in a series that covers the Internet of Things activities of the IERC-Internet of Things European Research Cluster, including both research and technological innovation, validation and deployment. The book builds on the ideas put forward by the European Research Cluster, the IoT European Platform Initiative (IoT-EPI) and the IoT European Large-Scale Pilots Programme, presenting global views and state-of-the-art results regarding the challenges facing IoT research, innovation, development and deployment in the next years. Hyperconnected environments integrating industrial/business/consumer IoT technologies and applications require new IoT open systems architectures integrated with network architecture (a knowledge-centric network for IoT), IoT system design and open, horizontal and interoperable platforms managing things that are digital, automated and connected and that function in real-time with remote access and control based on Internet-enabled tools. The IoT is bridging the physical world with the virtual world by combining augmented reality (AR), virtual reality (VR), machine learning and artificial intelligence (AI) to support the physical-digital integrations in the Internet of mobile things based on sensors/actuators, communication, analytics technologies, cyber-physical systems, software, cognitive systems and IoT platforms with multiple functionalities. These IoT systems have the potential to understand, learn, predict, adapt and operate autonomously. They can change future behaviour, while the combination of extensive parallel processing power, advanced algorithms and data sets feed the cognitive algorithms that allow the IoT systems to develop new services and propose new solutions. IoT technologies are moving into the industrial space and enhancing traditional industrial platforms with solutions that break free of device-, operating system- and protocol-dependency. Secure edge computing solutions replace local networks, web services replace software, and devices with networked programmable logic controllers (NPLCs) based on Internet protocols replace devices that use proprietary protocols. Information captured by edge devices on the factory floor is secure and accessible from any location in real time, opening the communication gateway both vertically (connecting machines across the factory and enabling the instant availability of data to stakeholders within operational silos) and horizontally (with one framework for the entire supply chain, across departments, business units, global factory locations and other markets). End-to-end security and privacy solutions in IoT space require agile, context-aware and scalable components with mechanisms that are both fluid and adaptive. The convergence of IT (information technology) and OT (operational technology) makes security and privacy by default a new important element where security is addressed at the architecture level, across applications and domains, using multi-layered distributed security measures. Blockchain is transforming industry operating models by adding trust to untrusted environments, providing distributed security mechanisms and transparent access to the information in the chain. Digital technology platforms are evolving, with IoT platforms integrating complex info

Bretherick's Handbook of Reactive Chemical Hazards is an assembly of all reported risks such as explosion, fire, toxic or high-energy events that result from chemical reactions gone astray, with extensive referencing to the primary literature. It is designed to improve safety in laboratories that perform chemical synthesis and general research, as well as chemical manufacturing plants. Entries are ordered by empirical formula and indexed under both name(s) and Chemical Abstracts Registry Numbers. This two-volume compendium focuses on reactivity risks of chemicals, alone and in combination; toxicity hazards are only included for unexpected reactions giving volatile poisons. Predict, avoid, and control reactivity danger with this latest edition of the leading guide. Covers every chemical with documented information on reactive hazards; more than 5,000 entries on single elements or compounds, and 5,000 entries on the interactions between two or more compounds. Includes five years of new reports, new

references to the primary literature, and amplification to existing entries Links similar compounds or incidents that are not obviously related

THE FOURTH EDITION IN SI UNITS of Fundamentals of Thermal-Fluid Sciences presents a balanced coverage of thermodynamics, fluid mechanics, and heat transfer packaged in a manner suitable for use in introductory thermal sciences courses. By emphasizing the physics and underlying physical phenomena involved, the text gives students practical examples that allow development of an understanding of the theoretical underpinnings of thermal sciences. All the popular features of the previous edition are retained in this edition while new ones are added. THIS EDITION FEATURES: A New Chapter on Power and Refrigeration Cycles The new Chapter 9 exposes students to the foundations of power generation and refrigeration in a well-ordered and compact manner. An Early Introduction to the First Law of Thermodynamics (Chapter 3) This chapter establishes a general understanding of energy, mechanisms of energy transfer, and the concept of energy balance, thermo-economics, and conversion efficiency. Learning Objectives Each chapter begins with an overview of the material to be covered and chapter-specific learning objectives to introduce the material and to set goals. Developing Physical Intuition A special effort is made to help students develop an intuitive feel for underlying physical mechanisms of natural phenomena and to gain a mastery of solving practical problems that an engineer is likely to face in the real world. New Problems A large number of problems in the text are modified and many problems are replaced by new ones. Some of the solved examples are also replaced by new ones. Upgraded Artwork Much of the line artwork in the text is upgraded to figures that appear more three-dimensional and realistic. MEDIA RESOURCES: Limited Academic Version of EES with selected text solutions packaged with the text on the Student DVD. The Online Learning Center (www.mheducation.com/olc/cengelFTFS4e) offers online resources for instructors including PowerPoint® lecture slides, and complete solutions to homework problems. McGraw-Hill's Complete Online Solutions Manual Organization System (<http://cosmos.mhhe.com/>) allows instructors to streamline the creation of assignments, quizzes, and tests by using problems and solutions from the textbook, as well as their own custom material.

The broad and developing scope of human factors and ergonomics - the application of scientific knowledge to improve peoples interaction with products, systems and environments - has been illustrated for 28 years by the books which make up the Contemporary Ergonomics series. This book presents the proceedings of the international conference Ergon

This book constitutes the refereed proceedings of the 11th International Andrei P. Ershov Informatics Conference, PSI 2017, held in Moscow, Russia, in June 2017. The 31 full papers presented in this volume were carefully reviewed and selected from 57 submissions. The papers cover various topics related to the foundations of program and system development and analysis, programming methodology and software engineering and information technologies.

This open access book, published to mark the 15th anniversary of the International Software Quality Institute (iSQI), is intended to raise the profile of software testers and their profession. It gathers contributions by respected software testing experts in order to highlight the state of the art as well as future challenges and trends. In addition, it covers current and emerging technologies like test automation, DevOps, and artificial intelligence methodologies used for software testing, before taking a look into the future. The contributing authors answer questions like: "How is the profession of tester currently changing? What should testers be prepared for in the years to come, and what skills will the next generation need? What opportunities are available for further training today? What will testing look like in an agile world that is user-centered and fast-paced? What tasks will remain for testers once the most important processes are automated?" iSQI has been focused on the education and certification of software testers for fifteen years now, and in the process has contributed to improving the quality of software in many areas. The papers gathered here clearly reflect the numerous ways in which software quality assurance can play a critical role in various areas. Accordingly, the book will be of interest to both professional software testers and managers working in software testing or software quality assurance.

This is a new edition of the combined Volumes I and II of the hugely successful Tutorial Chemistry Texts Maths for Chemists. The new edition will continue to provide an excellent resource for all undergraduate chemistry students particularly focussing on the needs of students who may not have studied mathematics beyond GCSE level (or equivalent). The text is introductory in nature and adopts a sympathetic approach for students who need support and understanding in working with the diverse mathematical tools required in a typical chemistry degree course. The topics covered include: power series, which are used to formulate alternative representations of functions and are important in model building in chemistry; complex numbers and complex functions, which appear in quantum chemistry, spectroscopy and crystallography; matrices and determinants used in the solution of sets of simultaneous linear equations and in the representation of geometrical transformations used to describe molecular symmetry characteristics; and vectors which allow the description of directional properties of molecules. New material includes a new chapter on Statistics and Error Analysis. Ideal for the needs of undergraduate chemistry students, Maths for Chemists is a comprehensive text consisting of short, single topic or modular texts concentrating on the fundamental areas of chemistry taught in undergraduate science courses. It provides a concise account of the basic principles underlying a given subject, embodying an independent-learning philosophy and including worked examples.

Algal World has been carefully written and edited with an interdisciplinary appeal and aims to bring all aspects of Algae together in one volume. The 22 chapters are divided into two different parts which have been authored by eminent researchers from across the world. The first part, Biology of Algae, contains 10 chapters dealing with the general characteristics, classification and description of different groups such as Blue Green Algae, Green Algae, Brown Algae, Red Algae, Diatoms, Xanthophyceae, Dinophyceae, etc. In , it has two important chapters covering Algae in Extreme Environments and Life Histories and Growth Forms in Green Algae. The second part, Applied Phycology, contains 12 chapters dealing with the more applied aspects ranging from Algal Biotechnology, Biofuel, Phycoremediation, Bioactive Compounds, Biofertilizer, Fatty Acids, Harmful Algal Blooms, Industrial Applications of Seaweeds, Nanotechnology, Phylogenomics and Algal culture Techniques, etc.

This book focuses on the importance of human factors in the development of reliable and safe unmanned systems. It discusses current challenges such as how to improve perceptual and cognitive abilities of robots, develop suitable synthetic vision systems, cope with degraded reliability of unmanned systems, predict robotic behavior in case of a loss of communication, the vision for future soldier-robot teams, human-agent teaming, real-world implications for human-robot interaction, and approaches to standardize both display and control of technologies across unmanned systems. Based on the AHFE 2016 International Conference on Human Factors in Robots and Unmanned Systems, held on July 27-31, 2016, in Walt Disney World®, Florida, USA, this book is expected to foster new discussion and stimulate new ideas towards the development of more reliable, safer, and

functional devices for carrying out automated and concurrent tasks.

Hofman, a researcher with the Chile-based Economic Commission for Latin America and the Caribbean, uses growth accounting methods and previously unavailable long-term series data to assess the economic performance of the region during the century from a comparative and historical perspective. In particular he compares Latin American economies to those of advanced capitalist economies, to newly industrialized economies, and to Spain and Portugal because of the historical ties. He looks at the reasons for the poor or negative growth during the 1980s and the apparent recovery in the 1990s and at such problems as debt, income inequality, high inflation, cyclical instability, and political and policy instability. Annotation copyrighted by Book News, Inc., Portland, OR

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This book provides in-depth insights into the regulatory frameworks of five countries and the EU concerning the regulation of genome edited plants. The country reports form the basis for a comparative analysis of the various national regulations governing genetically modified organisms (GMOs) in general and genome edited plants in particular, as well as the underlying regulatory approaches. The reports, which focus on the regulatory status quo of genome edited plants in Argentina, Australia, Canada, the EU, Japan and the USA, were written by distinguished experts following a uniform structure. On this basis, the legal frameworks are compared in order to foster a rational assessment of which approaches could be drawn upon to adjust, or to completely realign, the current EU regime for GMOs. In addition, a separate chapter identifies potential best practices for the regulation of plants derived from genome editing.

"Premier reference source"-- book cover.

This book explores a number of important issues in the area of occupational safety and hygiene. Presenting both research and best practices for the evaluation of occupational risk, safety and health in various types of industry, it particularly focuses on occupational safety in automated environments, innovative management systems and occupational safety in a global context. The different chapters examine the perspectives of all those involved, such as managers, workers and OSH professionals. Based on selected contributions presented at the 15th International Symposium on Occupational Safety and Hygiene (SHO 2019), held on 15–16 April, 2019, in Guimarães, Portugal, the book serves as a timely reference guide and source of inspiration to OSH researchers, practitioners and organizations operating in a global context.

This volume explores the ethical questions that arise in the development, creation and use of robots that are capable of semiautonomous or autonomous decision making and human-like action. It examines how ethical and moral theories can and must be applied to address the complex and critical issues of the application of these intelligent robots in society. Coverage first presents fundamental concepts and provides a general overview of ethics, artificial intelligence and robotics. Next, the book studies all principal ethical applications of robots, namely medical, assistive, socialized and war roboethics. It looks at such issues as robotic surgery, children-robot and elderly-robot therapeutical/social interactions and the use of robots, especially autonomous lethal ones, in warfare. In addition, a chapter also considers Japanese roboethics as well as key intercultural and robot legislation issues. Overall, readers are provided with a thorough investigation into the moral responsibility (if any) of autonomous robots when doing harm. This volume will serve as an ideal educational source in engineering and robotics courses as well as an introductory reference for researchers in the field.

The book reports on advanced topics in the areas of wearable robotics research and practice. It focuses on new technologies, including neural interfaces, soft wearable robots, sensors and actuators technologies, and discusses important regulatory challenges, as well as clinical and ethical issues. Based on the 2nd International Symposium on Wearable Robotics, WeRob2016, held October 18-21, 2016, in Segovia, Spain, the book addresses a large audience of academics and professionals working in government, industry, and medical centers, and end-users alike. It provides them with specialized information and with a source of inspiration for new ideas and collaborations. It discusses exemplary case studies highlighting practical challenges related to the implementation of wearable robots in a number of fields. One of the focus is on clinical applications, which was encouraged by the collocation of WeRob2016 with the International Conference on Neurorehabilitation, INCR2016. Additional topics include space applications and assistive technologies in the industry. The book merges together the engineering, medical, ethical and political perspectives, thus offering a multidisciplinary, timely snapshot of the field of wearable technologies.

Interactive Collaborative Robotics First International Conference, ICR 2016, Budapest, Hungary, August 24-26, 2016, Proceedings Springer

This book constitutes the proceedings of the Third International Conference on Interactive Collaborative Robotics, ICR 2018, held in Leipzig, Germany, in September 2018, as a satellite event of the 20th International Conference on Speech and Computer, SPECOM 2018. The 30 papers presented in this volume were carefully reviewed and selected from 51 submissions. The papers presents challenges of human-robot interaction, robot control and behavior in social robotics and collaborative robotics, as well as applied robotic and cyberphysical systems.

Cybernetics plays a significant role in coping with an aging society using state-of-the-art technologies from engineering, clinical medicine and humanities. This new interdisciplinary field studies technologies that enhance, strengthen, and support physical and cognitive functions of human beings, based on the fusion of human, machine, and information systems. The design of a seamless interface for interaction between the interior and exterior of the human body is described in this book from diverse aspects such as the physical, neurophysiological, and cognitive levels. It is the first book to cover the many aspects of cybernetics, allowing readers to understand the life support robotics technology for the elderly, including remote, in-home, hospital, institutional, community medical welfare, and vital-sensing systems. Serving as a valuable resource, this volume will interest not only graduate students, scientists, and engineers but also newcomers to the field of cybernetics.

This book highlights some of the most pressing safety, ethical, legal and societal issues related to the diverse contexts in which robotic technologies apply. Focusing on the essential concept of well-being, it addresses topics that are fundamental not only for research, but also for industry and end-users, discussing the challenges in a wide variety of applications, including domestic robots, autonomous manufacturing, personal care robots and drones.

Papers from a flagship robotics conference that cover topics ranging from kinematics to human-robot interaction and robot perception.

Robotics: Science and Systems VI spans a wide spectrum of robotics, bringing together researchers working on the foundations of robotics,

robotics applications, and the analysis of robotics systems. This volume presents the proceedings of the sixth Robotics: Science and Systems conference, held in 2010 at the University of Zaragoza, Spain. The papers presented cover a wide range of topics in robotics, spanning mechanisms, kinematics, dynamics and control, human-robot interaction and human-centered systems, distributed systems, mobile systems and mobility, manipulation, field robotics, medical robotics, biological robotics, robot perception, and estimation and learning in robotic systems. The conference and its proceedings reflect not only the tremendous growth of robotics as a discipline but also the desire in the robotics community for a flagship event at which the best of the research in the field can be presented.

Featuring selected contributions from the 2nd International Conference on Mechatronics and Robotics Engineering, held in Nice, France, February 18–19, 2016, this book introduces recent advances and state-of-the-art technologies in the field of advanced intelligent manufacturing. This systematic and carefully detailed collection provides a valuable reference source for mechanical engineering researchers who want to learn about the latest developments in advanced manufacturing and automation, readers from industry seeking potential solutions for their own applications, and those involved in the robotics and mechatronics industry.

This book gathers the proceedings of the 15th IFToMM World Congress, which was held in Krakow, Poland, from June 30 to July 4, 2019. Having been organized every four years since 1965, the Congress represents the world's largest scientific event on mechanism and machine science (MMS). The contributions cover an extremely diverse range of topics, including biomechanical engineering, computational kinematics, design methodologies, dynamics of machinery, multibody dynamics, gearing and transmissions, history of MMS, linkage and mechanical controls, robotics and mechatronics, micro-mechanisms, reliability of machines and mechanisms, rotor dynamics, standardization of terminology, sustainable energy systems, transportation machinery, tribology and vibration. Selected by means of a rigorous international peer-review process, they highlight numerous exciting advances and ideas that will spur novel research directions and foster new multidisciplinary collaborations.

Exploring issues from big-data to robotics, this volume is the first to comprehensively examine the regulatory implications of AI technology. This book constitutes the refereed proceedings of the 4th International Conference on Interactive Collaborative Robotics, ICR 2019, held in Istanbul, Turkey, in August 2019. The 32 papers presented in this volume were carefully reviewed and selected from 46 submissions. They deal with challenges of human-robot interaction; robot control and behavior in social robotics and collaborative robotics; and applied robotic and cyber-physical systems.

Explaining how ubiquitous computing is rapidly changing our private and professional lives, *Ethical IT Innovation: A Value-Based System Design Approach* stands at the intersection of computer science, philosophy, and management and integrates theories and frameworks from all three domains. The book explores the latest thinking on computer ethics, including the normative ethical theories currently shaping the debate over the good and bad consequences of technology. It begins by making the case as to why IT professionals, managers, and engineers must consider the ethical issues when designing IT systems, and then uses a recognized system development process model as the structural baseline for subsequent chapters. For each system development phase, the author discusses: the ethical issues that must be considered, who must consider them, and how that thought process can be most productive. In this way, an 'Ethical SDLC' (System Development Life Cycle) is created. The book presents an extensive case study that applies the "Ethical SDLC" to the example of privacy protection in RFID enabled environments. It explains how privacy can be built into systems and illustrates how ethical decisions can be consciously made at each stage of development. The final chapter revisits the old debate of engineers' ethical accountability as well as the role of management. Explaining the normative theories of computer ethics, the book explores the ethical accountability of developers as well as stakeholders. It also provides questions at the end of each chapter that examine the ethical dimensions of the various development activities.

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