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Computer Aided Pharmaceutics and Drug Delivery

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Vehicle and Automotive
Engineering 4 Springer
Nature

This book examines the role of computer-assisted techniques for discovering, designing, optimizing and manufacturing new, effective, and safe pharmaceutical formulations and drug delivery systems. The book discusses computational approaches, statistical modeling and molecular modeling for the development and safe delivery of drugs in humans. The application of concepts of QbD (Quality by Design), DoE (Design of Experiments), artificial intelligence and in silico pharmacokinetic assessment/simulation have been made a lot easier with the help of commercial software and expert systems. This title provides in-depth knowledge of such useful software with illustrations from the latest researches. The book also fills in the gap between

pharmaceutics and molecular modeling at micro, meso and macro scale by covering topics such as advancements in computer-aided Drug Design (CADD), drug-polymer interactions in drug delivery systems, molecular modeling of nanoparticles and pharmaceutics/bioinformatics. This book provides abundant applications of computers in formulation designing and characterization are provided as examples, case studies and illustrations. Short reviews of software, databases and expert systems have also been added to culminate the interest of readers for novel applications in formulation development and drug delivery. Computer-aided pharmaceutics and drug delivery is an authoritative reference source for all the latest scholarly update on emerging developments in computed assisted techniques for drug designing and development. The book is ideally designed for pharmacists, medical practitioners, students and researchers.

Mobile Robot Springer

Science & Business Media

This book provides state-of-the-art scientific and engineering research findings and developments in the area of mobile robotics and associated support technologies. It contains peer-reviewed articles presented at the CLAWAR 2008 conference. Robots are no longer confined to industrial manufacturing environments; rather, a great deal of interest is invested in the use of robots outside the factory environment. The CLAWAR conference series, established as a high-profile international event, acts as a platform for dissemination of research and development findings to address the current interest in mobile robotics in meeting the needs of mankind in various sectors of the society. These include personal care, public health, and services in the domestic, public and industrial environments. The editors of the book have extensive research experience and publications in the area of robotics in general, and in mobile robotics specifically.

Decentralized Neural

Control: Application to Robotics World Scientific
 This book provides state-of-the-art scientific and engineering research findings and developments in the area of mobile robotics and associated support technologies around the theme of cooperative robotics. The book contains peer reviewed articles presented at the CLAWAR 2016 conference. The book contains a strong stream of papers on multi-legged locomotion and cooperative robotics. There is also a strong collection of papers on human assistive devices, notably wearable exoskeletal and prosthetic devices, and personal care robots and mobility assistance devices designed to meet the growing challenges due to the global ageing society. Robot designs based on biological inspirations and ethical concerns and issues related to the design, development and deployment of robots are also strongly featured.

Towards Autonomous Robotic Systems
 Butterworth-Heinemann
 Wheeled Mobile Robotics: From Fundamentals Towards Autonomous Systems covers the main topics from the wide area

of mobile robotics, explaining all applied theory and application. The book gives the reader a good foundation, enabling them to continue to more advanced topics. Several examples are included for better understanding, many of them accompanied by short MATLAB® script code making it easy to reuse in practical work. The book includes several examples of discussed methods and projects for wheeled mobile robots and some advanced methods for their control and localization. It is an ideal resource for those seeking an understanding of robotics, mechanics, and control, and for engineers and researchers in industrial and other specialized research institutions in the field of wheeled mobile robotics. Beginners with basic math knowledge will benefit from the examples, and engineers with an understanding of basic system theory and control will find it easy to follow the more demanding fundamental parts and advanced methods explained. - Offers comprehensive coverage of the essentials of the field that are suitable for both academics and

practitioners - Includes several examples of the application of algorithms in simulations and real laboratory projects - Presents foundation in mobile robotics theory before continuing with more advanced topics - Self-sufficient to beginner readers, covering all important topics in the mobile robotics field - Contains specific topics on modeling, control, sensing, path planning, localization, design architectures, and multi-agent systems
ROS Robotics Projects IGI Global
 Robotics is an ever-expanding field and intelligent planning continues to play a major role. Given that the intention of mobile robots is to carry out tasks independent from human aid, robot intelligence is needed to make and plan out decisions based on various sensors. Planning is the fundamental activity that implements this intelligence into the mobile robots to complete such tasks. Understanding problems, challenges, and solutions to path planning and how it fits in is important to the realm of robotics. Intelligent Planning for Mobile Robotics: Algorithmic Approaches presents

content coverage on the basics of artificial intelligence, search problems, and soft computing approaches. This collection of research provides insight on both robotics and basic algorithms and could serve as a reference book for courses related to robotics, special topics in AI, planning, applied soft computing, applied AI, and applied evolutionary computing. It is an ideal choice for research students, scholars, and professors alike.

Towards Service Robots for Everyday

Environments PHI Learning Pvt. Ltd.

Caused by a rising mass customisation and the high variety of equipment versions, the flexibility of manufacturing systems in car production has to be increased. In this thesis a skill-based reconfiguration mechanism is presented to enhance functional reconfigurability of industrial mobile robots. A novel reconfiguration mechanism allows to react self-organised to functional process changes. The result of this mechanism is the on-line integration of new robot functionalities into the current manufacturing process while maintaining the productivity of the

mobile robot. Applied to an industrial mobile robot that is provided by AUDI AG, the suggested mechanism is validated in a real-world environment including the on-line verification of the reconfigured robot functionality in a Validity Check.

Digital Business and Electronic Commerce

Springer

Cyber-Physical Systems (CPS) integrate computing and communication capabilities by monitoring and controlling the physical systems via embedded hardware and computers. This book brings together new and futuristic findings on IoT, Cyber Physical Systems and Robotics leading towards Automation and solving issues of various critical applications in Real-time. The book initially overviews the concepts of IoT, IIoT and Cyber Physical Systems followed by various critical applications and discusses the latest designs and developments that provide common solutions for the convergence of technologies. In addition, the book specifies methodologies, algorithms and other relevant architectures in various fields that include

Automation, Robotics, Smart Agriculture and Industry 4.0. The book is intended for practitioners, enterprise

representatives, scientists, students and Ph.D Scholars in hopes of steering research further towards cyber physical systems design and development and implementation across various domains.

Additionally, this book can be used as a secondary reference, or rather one-stop guide, by professionals for real-life implementation of cyber physical systems. The book highlights: • A Critical Coverage of various domains: IoT, Cyber Physical Systems, Industry 4.0, Smart Automation and related critical applications. • Advanced elaborations for target audiences to understand the conceptual methodology and future directions of cyber physical systems and IoT. • An approach towards Research Orientations to enable researchers to point out areas and scope for implementation of Cyber Physical Systems in several domains for better productivity.

Robotic Fabrication in Architecture, Art and Design 2014 World

Scientific

The volume LNAI 13054 constitutes the refereed proceedings of the 22th Annual Conference Towards Autonomous Robotic Systems, TAROS 2021, held in Lincoln, UK, in September 2021.*The 45 full papers were carefully reviewed and selected from 66 submissions. Organized in the topical sections "Algorithms" and "Systems", they discuss significant findings and advances in the following areas: artificial intelligence; mechatronics; image processing and computer vision; special purpose and application-based systems; user interfaces and human computer interaction. * The conference was held virtually due to the COVID-19 pandemic.

[Intelligent Autonomous Systems 13](#) Cambridge University Press

As mobile robots become more common in general knowledge and practices, as opposed to simply in research labs, there is an increased need for the introduction and methods to Simultaneous Localization and Mapping (SLAM) and its techniques and concepts related to robotics. Simultaneous Localization and Mapping

for Mobile Robots: Introduction and Methods investigates the complexities of the theory of probabilistic localization and mapping of mobile robots as well as providing the most current and concrete developments. This reference source aims to be useful for practitioners, graduate and postgraduate students, and active researchers alike.

Advanced Mobile Robotics Springer Nature
The book presents a remarkable collection of chapters covering a wide range of topics in the areas of intelligent systems and artificial intelligence, and their real-world applications. It gathers the proceedings of the Intelligent Systems Conference 2019, which attracted a total of 546 submissions from pioneering researchers, scientists, industrial engineers, and students from all around the world. These submissions underwent a double-blind peer-review process, after which 190 were selected for inclusion in these proceedings. As intelligent systems continue to replace and sometimes outperform human intelligence in decision-making processes, they

have made it possible to tackle a host of problems more effectively. This branching out of computational intelligence in several directions and use of intelligent systems in everyday applications have created the need for an international conference as a venue for reporting on the latest innovations and trends. This book collects both theory and application based chapters on virtually all aspects of artificial intelligence; presenting state-of-the-art intelligent methods and techniques for solving real-world problems, along with a vision for future research, it represents a unique and valuable asset.

Robots in Industries: Patent Analysis and Business Opportunities CRC Press

Mobile robotics is a challenging field with great potential. It covers disciplines including electrical engineering, mechanical engineering, computer science, cognitive science, and social science. It is essential to the design of automated robots, in combination with artificial intelligence, vision, and sensor technologies. Mobile robots are widely used for surveillance,

guidance, transportation and entertainment tasks, as well as medical applications. This Special Issue intends to concentrate on recent developments concerning mobile robots and the research surrounding them to enhance studies on the fundamental problems observed in the robots. Various multidisciplinary approaches and integrative contributions including navigation, learning and adaptation, networked system, biologically inspired robots and cognitive methods are welcome contributions to this Special Issue, both from a research and an application perspective.

Advances in Production

Springer Nature

This book provides state-of-the-art scientific and engineering research findings and developments in the area of mobile robotics and associated support technologies. The book contains peer reviewed articles presented at the CLAWAR 2012 conference. Robots are no longer confined to industrial and manufacturing environments. A great deal of interest is invested in the use of robots

outside the factory environment. The CLAWAR conference series, established as a high profile international event, acts as a platform for dissemination of research and development findings and supports such a trend to address the current interest in mobile robotics to meet the needs of mankind in various sectors of the society. These include personal care, public health, services in the domestic, public and industrial environments. The editors of the book have extensive research experience and publications in the area of robotics in general and in mobile robotics specifically, and their experience is reflected in editing the contents of the book.

Intelligent Systems and Applications

World Scientific

This book discusses the papers presented at Conference ISPEM 2023 which was organized by Wrocław University of Science and Technology, Liverpool John Moores University, and University of Minho. The conference gave an opportunity to exchange experiences in intelligent systems and tools in production, and

maintenance, especially its practical application.

Modern Robotics IGI Global

People have dreamed of machines, which would free them from unpleasant, dull, dirty and dangerous tasks and work for them as servants, for centuries if not millennia. Service robots seem to finally let these dreams come true. But where are all these robots that eventually serve us all day long, day for day? A few service robots have entered the market: domestic and professional cleaning robots, lawnmowers, milking robots, or entertainment robots. Some of these robots look more like toys or gadgets rather than real robots. But where is the rest? This is a question, which is asked not only by customers, but also by service providers, care organizations, politicians, and funding agencies. The answer is not very satisfying. Today's service robots have their problems operating in everyday environments. This is by far more challenging than operating an industrial robot behind a fence. There is a comprehensive list of technical and scientific problems, which

still need to be solved. To advance the state of the art in service robotics towards robots, which are capable of operating in an everyday environment, was the major objective of the DESIRE project (Deutsche Service Robotik Initiative - Germany Service Robotics Initiative) funded by the German Ministry of Education and Research (BMBF) under grant no. 01IME01A. This book offers a sample of the results achieved in DESIRE.

Emergence of Cyber Physical System and IoT in Smart Automation and Robotics MIT Press

The second edition of a comprehensive introduction to all aspects of mobile robotics, from algorithms to mechanisms. Mobile robots range from the Mars Pathfinder mission's teleoperated Sojourner to the cleaning robots in the Paris Metro. This text offers students and other interested readers an introduction to the fundamentals of mobile robotics, spanning the mechanical, motor, sensory, perceptual, and cognitive layers the field comprises. The text focuses on mobility itself, offering an overview of

the mechanisms that allow a mobile robot to move through a real world environment to perform its tasks, including locomotion, sensing, localization, and motion planning. It synthesizes material from such fields as kinematics, control theory, signal analysis, computer vision, information theory, artificial intelligence, and probability theory. The book presents the techniques and technology that enable mobility in a series of interacting modules. Each chapter treats a different aspect of mobility, as the book moves from low-level to high-level details. It covers all aspects of mobile robotics, including software and hardware design considerations, related technologies, and algorithmic techniques. This second edition has been revised and updated throughout, with 130 pages of new material on such topics as locomotion, perception, localization, and planning and navigation. Problem sets have been added at the end of each chapter. Bringing together all aspects of mobile robotics into one volume, Introduction to Autonomous Mobile Robots can serve as a

textbook or a working tool for beginning practitioners. Curriculum developed by Dr. Robert King, Colorado School of Mines, and Dr. James Conrad, University of North Carolina-Charlotte, to accompany the National Instruments LabVIEW Robotics Starter Kit, are available. Included are 13 (6 by Dr. King and 7 by Dr. Conrad) laboratory exercises for using the LabVIEW Robotics Starter Kit to teach mobile robotics concepts.

The 21st Century Industrial Robot: When Tools Become Collaborators Packt Publishing Ltd

Robotic automation has become ubiquitous in the modern manufacturing landscape, spanning an overwhelming range of processes and applications-- from small scale force-controlled grinding operations for orthopedic joints to large scale composite manufacturing of aircraft fuselages. Smart factories, seamlessly linked via industrial networks and sensing, have revolutionized mass production, allowing for intelligent, adaptive manufacturing processes across a broad spectrum of industries. Against this

background, an emerging group of researchers, designers, and fabricators have begun to apply robotic technology in the pursuit of architecture, art, and design, implementing them in a range of processes and scales. Coupled with computational design tools the technology is no longer relegated to the repetitive production of the assembly line, and is instead being employed for the mass-customization of non-standard components. This radical shift in protocol has been enabled by the development of new design to production workflows and the recognition of robotic manipulators as “multi-functional” fabrication platforms, capable of being reconfigured to suit the specific needs of a process. The emerging discourse surrounding robotic fabrication seeks to question the existing norms of manufacturing and has far reaching implications for the future of how architects, artists, and designers engage with materialization processes. This book presents the proceedings of Rob|Arch2014, the second international conference on robotic fabrication in architecture,

art, and design. It includes a Foreword by Sigrid Brell-Cokcan and Johannes Braumann, Association for Robots in Architecture. The work contained traverses a wide range of contemporary topics, from methodologies for incorporating dynamic material feedback into existing fabrication processes, to novel interfaces for robotic programming, to new processes for large-scale automated construction. The latent argument behind this research is that the term ‘file-to-factory’ must not be a reductive celebration of expediency but instead a perpetual challenge to increase the quality of feedback between design, matter, and making.

Simultaneous Localization and Mapping for Mobile Robots: Introduction and Methods Springer

This book presents the selected proceedings of the (third) fourth Vehicle and Automotive Engineering conference, reflecting the outcomes of theoretical and practical studies and outlining future development trends in a broad field of automotive research. The conference’s main themes included design, manufacturing, economic

and educational topics.

Human-in-the-loop Learning and Control for Robot

Teleoperation □□□□□□□□

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Robots have been applied in a broad range of areas, including assembly lines and factories, warehouse logistics, military defense, and medical care, to name a few. Their great business potential has lured investors and technology companies. This book provides an overview of robot technologies, including service robots, industrial robots, and medical robots, as well as the related AI (Artificial Intelligence) and sensor technologies. Using patent mining techniques, comprising of text and data mining, this book reveals major vendors' patent deployment and technology trends. Also included are the business outlook and opportunities for perspective entrants. *Biologically Inspired Control of Humanoid Robot Arms* Springer
There is an increasing demand to develop intelligent robotics and autonomous systems to deal with dynamically changing and complex, unstructured, and unpredictable environments. Such

robots should be able to handle task varieties, environment dynamics and goal variations, and their complexity. This also highlights the need for having intelligent robotics and autonomous systems with capabilities assuring reliable and robust functions resolving real-time complex problems that are associated with many applications across diverse domains. This requires unconventional ways to develop creative and innovative, energy-efficient, and eco- and environmentally friendly solutions that consider new ways of creative thinking while drawing inspiration from nature as a model leading to creating new designs, intelligent systems, intelligent structures/mechanisms, reconfigurability, and more. *Global Perspectives on Robotics and Autonomous Systems: Development and Applications* describes the evolution of robotics and autonomous systems, their development, their technologies, and their applications. This book discusses the concept of autonomy, requirements, and its role in shaping the

behavior of these robots so that they can make their own effective and safe decisions and act on them reliably while assuring real-life requirements. Covering topics such as digital transformation, fused deposition modeling (FDM), and organizational unbundling process, this premier reference source is an essential resource for engineers, computer scientists, industry professionals, manufacturers, smart systems developers, data analysts, students and educators of higher educations, researchers, and academicians. *Multichannel Marketing* IGI Global Human-in-the-loop Learning and Control for Robot Teleoperation presents recent, research progress on teleoperation and robots, including human-robot interaction, learning and control for teleoperation with many extensions on intelligent learning techniques. The book integrates cutting-edge research on learning and control algorithms of robot teleoperation, neural motor learning control, wave variable enhancement, EMG-based

teleoperation control, and other key aspects related to robot technology, presenting implementation tactics, adequate application examples and illustrative interpretations. Robots have been used in various industrial processes to reduce labor costs and improve work efficiency. However, most robots are only designed to work on repetitive and fixed tasks, leaving a gap with the human desired manufacturing effect. - Introduces research progress and technical contributions on teleoperation robots, including intelligent human-robot interactions and learning and control algorithms for teleoperation - Presents control strategies and learning algorithms to a teleoperation framework to enhance human-robot shared control, bi-directional perception and intelligence of the teleoperation system - Discusses several control and learning methods, describes the working implementation and shows how these methods can be applied to a specific and practical teleoperation system

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