Getting Kids Into Robotics Servo Magazine

Robot SoccerBoD – Books on Demand
This book gathers the latest advances, innovations and applications in the field of robotics and mechatronics, as presented by leading international researchers and engineers at the 6th IFToMM International Symposium on Robotics and Mechatronics (ISRM), held in Taipei, Taiwan, on October 28–30, 2019. It covers highly diverse topics, including mechanism synthesis, analysis, and design, kinematics and dynamics of multibody systems, modelling and simulation, sensors and actuators, novel robotic systems, industrial- and service-related robotics and mechatronics, medical robotics, and historical developments in robotics and mechatronics. The contributions, which were selected through a rigorous international peer-review process, share exciting ideas that spur novel research directions and foster new, multidisciplinary collaborations.

The purpose of this book is to reach out to teachers, parents, coaches, and students who may be hoping to, or just investigating the possibility of, how to get started with robotics. At the same time, we hope to leverage the efforts of those who have been hard at work and "play" in this massive movement for many years, applaud their efforts, and provide them with documentation, support, and additional resources to reach further into the possibilities they can help create for all of us in bringing the power and potential of learning through robotics to more students, to the classroom and beyond. Not only does this book provide resources and firsthand insight into this exciting field, but it also provides one-of-a-kind perspectives of curricular applications of robotics for student learning.

Autonomous robots must carry out useful tasks all by themselves relying entirely on their own perceptions of their environment. The cognitive abilities required for autonomous action are largely independent of robot size, which makes mini robots attractive as artefacts for research, education and entertainment. Autonomous mini robots must be small enough for experimentation on a desktop or a small laboratory. They must be easy to carry and safe for interaction with humans. They must not be expensive. Mini robot designers have to work at the leading edge of technology so that their creations can carry out purposeful autonomic action under these constraints. Since 2001 researchers have met every two years for an international symposium to report on the advances achieved in Autonomous Mini Robots for Research and Edutainment (AMiRE). The AMiRE Symposium is a single track conference that offers ample opportunities for discussion and exchange of ideas. This volume contains the contributed papers of the 2011 AMiRE Symposium held from 23 to 25 May 2011 at Bielefeld University, Germany. The contributions in this volume represent the state-of-the-art of autonomous mini robots; they demonstrate what is currently technically feasible and show some of the applications for autonomous mini robots.

This book consists of 18 chapters divided in four sections: Robots for Educational Purposes, Health-Care and Medical Robots, Hardware - State of the Art, and Localization and Navigation. In the first section, there are four chapters covering autonomous mobile robot Emmy III, KCLBOT - mobile nonholonomic robot, and general overview of educational mobile robots. In the second

section, the following themes are covered: walking support robots, control system for wheelchairs, leg-wheel mechanism as a mobile platform, micro mobile robot for abdominal use, and the influence of the robot size in the psychological treatment. In the third section, there are chapters about I2C bus system, vertical displacement service robots, quadruped robots - kinematics and dynamics model and Epi.q (hybrid) robots. Finally, in the last section, the following topics are covered: skid-steered vehicles, robotic exploration (new place recognition), omnidirectional mobile robots, ball-wheel mobile robots, and planetary wheeled mobile robots.

This proceedings book gathers the latest achievements and trends in research and development in educational robotics from the 10th International Conference on Robotics in Education (RiE), held in Vienna, Austria, on April 10–12, 2019. It offers valuable methodologies and tools for robotics in education that encourage learning in the fields of science, technology, engineering, arts and mathematics (STEAM) through the design, creation and programming of tangible artifacts for creating personally meaningful objects and addressing real-world societal needs. It also discusses the introduction of technologies ranging from robotics platforms to programming environments and languages and presents extensive evaluations that highlight the impact of robotics on students' interests and competence development. The approaches included cover the entire educative range, from the elementary school to the university level in both formal and informal settings.

The papers in this volume were the fruitful scientific results of the Second International Conference on Social Robotics (ICSR), held during November 23–24, 2010 in Singapore, which was jointly organized by the Social Robotics Laboratory (SRL), Interactive Digital Media Institute (IDMI), the National University of Singapore and 2 Human Language Technology Department, the Institute for Infocomm Research (I R), A*STAR, Singapore. These papers address a range of topics in social robotics and its applications. We received paper submissions from America, Asia, and Europe. All the papers were reviewed by at least three referees from the 32-member Program Committee who were assembled from the global community of social robotics researchers. This v- ume contains the 42 papers that were selected to report on the latest developments and studies of social robotics in the areas of human—robot interaction; affective and cognitive sciences for interactive robots; design philosophies and software archit- tures for robots; learning, adaptation and evolution of robotic intelligence; and mec- tronics and intelligent control.

Collaborative and Humanoid Robots guides readers through the fundamentals and state-of-the-art concepts and future expectations of robotics. It showcases interesting research topics on robots and cobots by researchers, industry practitioners, and academics. Divided into two sections on "Collaborative Robots" and "Humanoid Robots," this book includes surveys of recent publications that investigative the interaction between humanoid robots and humans; safe adaptive trajectory tracking control of robots; 3D printed, self-learning robots; robot trajectory, guidance, and control; social robots; Tiny Blind assistive humanoid robots; and more.

CHOICE Outstanding Academic Title for 2009 "This ground-breaking resource is strongly recommended for all libraries

and health and welfare institutional depots; essential for university collections, especially those catering to social studies programs." —Library Journal, STARRED Review Children and adults spend a great deal of time in activities we think of as "play," including games, sports, and hobbies. Without thinking about it very deeply, almost everyone would agree that such activities are fun, relaxing, and entertaining. However, play has many purposes that run much deeper than simple entertainment. For children, play has various functions such as competition, following rules, accepting defeat, choosing leaders, exercising leadership, practicing adult roles, and taking risks in order to reap rewards. For adults, many games and sports serve as harmless releases of feelings of aggression, competition, and intergroup hostility. The Encyclopedia of Play in Today's Society explores the concept of play in history and modern society in the United States and internationally. Its scope encompasses leisure and recreational activities of children and adults throughout the ages, from dice games in the Roman Empire to video games today. With more than 450 entries, these two volumes do not include coverage of professional sports and sport teams but, instead, cover the hundreds of games played not to earn a living but as informal activity. All aspects of play—from learning to competition, mastery of nature, socialization, and cooperation—are included. Simply enough, this Encyclopedia explores play played for the fun of it! Key Features Available in both print and electronic formats Provides access to the fascinating literature that has explored questions of psychology, learning theory, game theory, and history in depth Considers the affects of play on child and adult development, particularly on health, creativity, and imagination Contains entries that describe both adult and childhood play and games in dozens of cultures around the world and throughout history Explores the sophisticated analyses of social thinkers such as Huizinga, Vygotsky, and Sutton-Smith, as well as the wide variety of games, toys, sports, and entertainments found around the world Presents cultures as diverse as the ancient Middle East, modern Russia, and China and in nations as far flung as India, Argentina, and France Key Themes Adult Games Board and Card Games Children's Games History of Play Outdoor Games and Amateur Sports Play and Education Play Around the World Psychology of Play Sociology of Play Toys and Business Video and Online Games For a subject we mostly consider light-hearted, play as a research topic has generated an extensive and sophisticated literature, exploring a range of penetrating questions. This two-volume set serves as a general, nontechnical resource for academics, researchers, and students alike. It is an essential addition to any academic library.

LEGO MINDSTORMS has changed the way we think about robotics by making it possible for anyone to build real, working robots. The latest MINDSTORMS set, EV3, is more powerful than ever, and The LEGO MINDSTORMS EV3 Discovery Book is the complete, beginner-friendly guide you need to get started. Begin with the basics as you build and program a simple robot to experiment with motors, sensors, and EV3 programming. Then you'll move on to a series of

increasingly sophisticated robots that will show you how to work with advanced programming techniques like data wires, variables, and custom-made programming blocks. You'll also learn essential building techniques like how to use beams, gears, and connector blocks effectively in your own designs. Master the possibilities of the EV3 set as you build and program: –The EXPLOR3R, a wheeled vehicle that uses sensors to navigate around a room and follow lines –The FORMULA EV3 RACE CAR, a streamlined remote-controlled race car –ANTY, a six-legged walking creature that adapts its behavior to its surroundings –SK3TCHBOT, a robot that lets you play games on the EV3 screen –The SNATCH3R, a robotic arm that can autonomously find, grab, lift, and move the infrared beacon –LAVA R3X, a humanoid robot that walks and talks More than 150 building and programming challenges throughout encourage you to think creatively and apply what you've learned to invent your own robots. With The LEGO MINDSTORMS EV3 Discovery Book as your guide, you'll be building your own out-of-this-world creations in no time! Requirements: One LEGO MINDSTORMS EV3 set (LEGO SET #31313)

The ultimate DIY project guide for techie dads raising kids in their own geeky image, in the spirit of The Dangerous Book for Boys Today's generation of dads grew up more tech-savvy than ever. Rather than joining the Little League team, many grew up playing computer games, Dungeons and Dragons, and watching Star Wars. Now with kids of their own, these digital-age dads are looking for fresh ways to share their love of science and technology, and help their kids develop a passion for learning and discovery. Enter supergeek, and father of two, Ken Denmead. An engineer and editor of the incredibly popular GeekDad blog on wired.com, Ken has created the ultimate, idea-packed guide guaranteed to help dads and kids alike enjoy the magic of playtime together and tap into the infinite possibility of their imagination. With illustrations throughout, this book offers projects for all ages to suit any timeframe or budget. With Denmead's expert guidance, you and your child can: •Fly a night-time kite ablaze with lights or launch a video camera with balloons •Construct the "Best Slip n' Slide Ever," a guaranteed thrill ride •Build a working lamp with LEGO bricks and CDs •Create a customized comic strip or your own board game •Transform any room into a spaceship •Make geeky crafts like cyborg jack-o'-lanterns or Ethernet cuff links Brimming with endlessly fun and futuristic tidbits on everything from gaming to gadgets, GeekDad helps every tech-savvy father unleash his inner kid-and bond with the next generation of brainiacs. Watch a Video

This book constitutes the refereed proceedings of the 8th International Conference on Theory and Practice of Natural Computing, TPNC 2019, held in Kingston, ON, Canada, in December 2019. The 15 full papers presented in this book, together with two invited talk, were carefully reviewed and selected from 38 submissions. The papers are organized in topical sections named: Applications of Natural Computing; Evolutionary Computation; Genetic Algorithms, Swarm

Intelligence, and Heuristics; Quantum Computing and Information.

Make your First Robot will help students to build and program their first robot using Arduino. It starts with an introduction of the hardware and software required to build and program the robots. The concepts are explained with simple analogies. Detailed explanation of the functionalities and programming of each hardware component are given. Integration of all the hardware components and programs to make a fully functional robot is explained for a mini Path-finder and Robotic Arm. Inexpensive components are used to build these robots. This book will flourish your imagination to the next level of robotics.

Hands-on STEM activities, essential questions, and coding challenges

This book constitutes the refereed proceedings of the 9th International Conference on Social Robotics, ICSR 2016, held in Tsukuba, Japan, in November 2017.The 74 revised full papers presented were carefully reviewed and selected from 110 submissions. The theme of the 2017 conference is: Embodied Interactive Robots. In addition to the technical sessions, ICSR 2017 included four workshops: 1) Social Robot Intelligence for Social Human-Robot Interaction of Service Robots; 2) Human Safety and Comfort in Human-Robot Interactive Social Environments; 3) Modes of Interaction for Social Robots (MISR 2017): Postures, Gestures and Microinteractions; and 4) Religion in Robotics.

This book constitutes the refereed proceedings of the 4th International Conference on Social Robotics, ICSR 2012, held in Chengdu, China, in October 2012. The 66 revised full papers were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on affective and cognitive sciences for socially interactive robots, situated interaction and embodiment, robots to assist the elderly and persons with disabilities, social acceptance of robots and their impact to the society, artificial empathy, HRI through non-verbal communication and control, social telepresence robots, embodiments and networks, interaction and collaboration among robots, humans and environment, human augmentation, rehabilitation, and medical robots I and II.

"How long have I been on Prime now. Seven years? Five before the magnetic anomaly and two afterwards, not counting of course, the two hundred years in 'hib sleep', and still, there are so many mysteries on Prime." John remains alone until the mothership arrives. However, the rescuers inform him that they came not to rescue him, but to rescue their lagging human colony located on an asteroid named 'Hope'. Nonetheless, John learns that a handful of adults volunteer to remain behind. The bad news: "Congratulations, John, you just became the ugly uncle to twelve children who think you're a cannibal." The possibility of another destructive solar magnetic anomaly constantly reminds John that, eventually, he must resolve the final equation: is Prime humankind's last hope?

th This volume is an edition of the papers selected from the 12 FIRA RoboWorld C- gress, held in Incheon, Korea, August 16–18, 2009. The Federation of International Robosoccer Association (FIRA – www. fira. net) is a non-profit organization, which organizes

robotic competitions and meetings around the globe annually. The RoboSoccer competitions started in 1996 and FIRA was -tablished on June 5, 1997. The Robot Soccer competitions are aimed at promoting the spirit of science and technology to the younger generation. The congress is a forum in which to share ideas and future directions of technologies, and to enlarge the human networks in robotics area. The objectives of the FIRA Cup and Congress are to explore the technical dev- opment and achievement in the field of robotics, and provide participants with a robot festival including technical presentations, robot soccer competitions and exhibits - der the theme "Where Theory and Practice Meet. " th Under the umbrella of the 12 FIRA RoboWorld Incheon Congress 2009, six int- national conferences were held for greater impact and scientific exchange: th • 6 International Conference on Computational Intelligence, Robotics and Autonomous Systems (CIRAS) th • 5 International Symposium on Autonomous Minirobots for Research and Edutainment (AMiRE) • International Conference on Social Robotics (ICSR) • International Conference on Advanced Humanoid Robotics Research (ICAHRR) • International Conference on Entertainment Robotics (ICER) • International Robotics Education Forum (IREF) This volume consists of selected quality papers from the six conferences.

With the assistance of Kroski's guide, libraries everywhere can offer their own take on these exciting forms of entertainment, engagement, and education.

This book constitutes the proceedings of the International Conference on Research and Education in Robotics, EUROBOT 2011, held in Prague, Czech Republic, in June 2011. The 28 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers present current basic research such as robot control and behaviour, applications of autonomous intelligent robots, and perception, processing and action; as well as educationally oriented papers addressing issues like robotics at school and at university, practical educational robotics activities, practices in educational robot design, and future pedagogical activities.

How a built environment that is robotic and interactive becomes an apt home to our restless, dynamic, and increasingly digital society. The relationship of humans to computers can no longer be represented as one person in a chair and one computer on a desk. Today computing finds its way into our pockets, our cars, our appliances; it is ubiquitous—an inescapable part of our everyday lives. Computing is even expanding beyond our devices; sensors, microcontrollers, and actuators are increasingly embedded into the built environment. In Architectural Robotics, Keith Evan Green looks toward the next frontier in computing: interactive, partly intelligent, meticulously designed physical environments. Green examines how these "architectural robotic" systems will support and augment us at work, school, and home, as we roam, interconnect, and age. Green tells the stories of three projects from his research lab that exemplify the reconfigurable, distributed, and transfigurable environments of architectural robotics. The Animated Work Environment is a robotic work environment of shape-shifting physical space that responds dynamically to the working life of the people within it; home+ is a suite of networked, distributed "robotic furnishings" integrated into existing domestic and healthcare environments; and LIT ROOM offers a simulated environment in which the physical space of

a room merges with the imaginary space of a book, becoming "a portal to elsewhere." How far beyond workstations, furniture, and rooms can the environments of architectural robotics stretch? Green imagines scaled-up neighborhoods, villages, and metropolises composed of physical bits, digital bytes, living things, and their hybrids. Not global but local, architectural robotics grounds computing in a capacious cyber-physical home.

This book includes papers from the 5th International Conference on Robot Intelligence Technology and Applications held at KAIST, Daejeon, Korea on December 13–15, 2017. It covers the following areas: artificial intelligence, autonomous robot navigation, intelligent robot system design, intelligent sensing and control, and machine vision. The topics included in this book are deep learning, deep neural networks, image understanding, natural language processing, speech/voice/text recognition, reasoning & inference, sensor integration/fusion/perception, multisensor data fusion, navigation/SLAM/localization, distributed intelligent algorithms and techniques, ubiquitous computing, digital creatures, intelligent agents, computer vision, virtual/augmented reality, surveillance, pattern recognition, gesture recognition, fingerprint recognition, animation and virtual characters, and emerging applications. This book is a valuable resource for robotics scientists, computer scientists, artificial intelligence researchers and professionals in universities, research institutes and laboratories.

Into the Void science is your monthly free digital magazine, with all the current science news and research. This month find out about how colour could help your bandwidth speeds, what influences carnivore jaw size and more. #science #physics #medicine #STEM #chemistry #space #genetics

This volume contains the proceedings of the 26th International Conference on Robotics in Alpe-Adria-Danube Region, RAAD 2017, held at the Polytechnic University of Turin, Italy, from June 21-23, 2017. The conference brought together academic and industrial researchers in robotics from 30 countries, the majority of them affiliated to the Alpe-Adria-Danube Region, and their worldwide partners. RAAD 2017 covered all major areas of R&D and innovation in robotics, including the latest research trends. The book provides an overview on the advances in service and industrial robotics. The topics are presented in a sequence starting from the classical robotic subjects, such as kinematics, dynamics, structures, control, and ending with the newest topics, like human-robot interaction and biomedical applications. Researchers involved in the robotic field will find this an extraordinary and up-to-date perspective on the state of the art in this area.

This book provides the bases on AI techniques and offer solutions in modeling, pattern recognition, clustering, and many other problems. The text gives a comprehensive coverage of major AI techniques currently available to assist in HCI and Robotics.

Japan is arguably the first postindustrial society to embrace the prospect of human-robot coexistence. Over the past decade, Japanese humanoid robots designed for use in homes, hospitals, offices, and schools have become celebrated in mass and social media throughout the world. In Robo sapiens japanicus, Jennifer Robertson casts a critical eye on press releases and public relations videos that misrepresent robots as being as versatile and agile as their science fiction counterparts. An ethnography and sociocultural history of governmental and academic discourse of human-robot relations in Japan, this book explores how actual robots—humanoids, androids, and animaloids—are "imagineered" in ways that reinforce the conventional sex/gender system and political-economic status quo. In addition, Robertson interrogates the notion of human exceptionalism as she considers whether "civil rights" should be granted to robots. Similarly, she juxtaposes how robots and robotic exoskeletons reinforce a conception of the "normal" body with a deconstruction of the much-invoked Theory of the Uncanny Valley.

This book will show you how to use your Arduino to control a variety of different robots, while providing step-by-step instructions on the entire robot building process. You'll learn Arduino basics as well as the characteristics of different types of motors used in robotics. You also discover controller methods and failsafe methods, and learn how to apply them to your project. The book starts with basic robots and moves into more complex projects, including a GPS-enabled robot, a robotic lawn mower, a fighting bot, and even a DIY Segway-clone. Introduction to the Arduino and other components needed for robotics Learn how to build motor controllers Build bots from simple line-following and bump-sensor bots to more complex robots that can mow your lawn, do battle, or even take you for a ride Please note: the print version of this title is black & white; the eBook is full color.

The idea of using soccer game for promoting science and technology of artificial intelligence and robotics was presented in the early 90s of the last century. Researchers in many different scientific fields all over the world recognized this idea as an inspiring challenge. Robot soccer research is interdisciplinary, complex, demanding but most of all, fun and motivational. Obtained knowledge and results of research can easily be transferred and applied to numerous applications and projects dealing with relating fields such as robotics, electronics, mechanical engineering, artificial intelligence, etc. As a consequence, we are witnesses of rapid advancement in this field with numerous robot soccer competitions and a vast number of teams and team members. The best illustration is numbers from the RoboCup 2009 world championship held in Graz, Austria which gathered around 2300 participants in over 400 teams from 44 nations. Attendance numbers at various robot soccer events show that interest in robot soccer goes beyond the academic and R

Artificial intelligence has been applied to many areas of science and technology, including the power and energy sector. Renewable energy in particular has experienced the tremendous positive impact of these developments. With the recent evolution of smart energy technologies,

engineers and scientists working in this sector need an exhaustive source of current knowledge to effectively cater to the energy needs of citizens of developing countries. Computational Methodologies for Electrical and Electronics Engineers is a collection of innovative research that provides a complete insight and overview of the application of intelligent computational techniques in power and energy. Featuring research on a wide range of topics such as artificial neural networks, smart grids, and soft computing, this book is ideally designed for programmers, engineers, technicians, ecologists, entrepreneurs, researchers, academicians, and students.

Computing Methodologies -- Artificial Intelligence.

About the Handbook of Industrial Robotics, Second Edition: "Once again, the Handbook of Industrial Robotics, in its Second Edition, explains the good ideas and knowledge that are needed for solutions." -Christopher B. Galvin, Chief Executive Officer, Motorola, Inc. "The material covered in this Handbook reflects the new generation of robotics developments. It is a powerful educational resource for students, engineers, and managers, written by a leading team of robotics experts." - Yukio Hasegawa, Professor Emeritus, Waseda University, Japan. "The Second Edition of the Handbook of Industrial Robotics organizes and systematizes the current expertise of industrial robotics and its forthcoming capabilities. These efforts are critical to solve the underlying problems of industry. This continuation is a source of power. I believe this Handbook will stimulate those who are concerned with industrial robots, and motivate them to be great contributors to the progress of industrial robotics." -Hiroshi Okuda, President, Toyota Motor Corporation. "This Handbook describes very well the available and emerging robotics capabilities. It is a most comprehensive guide, including valuable information for both the providers and consumers of creative robotics applications." -Donald A. Vincent, Executive Vice President, Robotic Industries Association 120 leading experts from twelve countries have participated in creating this Second Edition of the Handbook of Industrial Robotics. Of its 66 chapters, 33 are new, covering important new topics in the theory, design, control, and applications of robotics. Other key features include a larger glossary of robotics terminology with over 800 terms and a CD-ROM that vividly conveys the colorful motions and intelligence of robotics. With contributions from the most prominent names in robotics worldwide, the Handbook remains the essential resource on all aspects of this complex subject.

This book gathers papers presented at the International Conference "Educational Robotics in the Maker Era – EDUROBOTICS 2018", held in Rome, Italy, on October 11, 2018. The respective chapters explore the connection between the Maker Movement on the one hand, and Educational Robotics, which mainly revolves around the constructivist and constructionist pedagogy, on the other. They cover a broad range of topics relevant for teacher education and for designing activities for children and youth, with an emphasis on using modern low-cost technologies (including block-based programming environments, Do-It-Yourself electronics, 3D printed artifacts, intelligent distributed systems, IoT technology and gamification) in formal and informal education settings. The twenty contributions collected here will introduce researchers and practitioners to the latest advances in educational robotics, with a focus on science, technology, engineering, arts and mathematics (STEAM) education. Teachers and educators at all levels will find valuable insights and inspirations into how educational robotics can promote technological interest and 21st century skills – e.g. creativity, critical thinking, teamwork, and problem-solving – with a special emphasis on new making technologies.

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