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Intelligent Robotics and Applications - Xin-Jun Liu 2021-10-19

The 4-volume set LNAI 13013 - 13016 constitutes the proceedings of the 14th International Conference on Intelligent Robotics and Applications, ICIRA 2021, which took place in Yantai, China, during October 22-25, 2021. The 299 papers included in these proceedings were carefully reviewed and selected from 386 submissions. They were organized in topical sections as follows: Robotics dexterous manipulation; sensors, actuators, and controllers for soft and hybrid robots; cable-driven parallel robot; human-centered wearable robotics; hybrid system modeling and human-machine interface; robot manipulation skills learning; micro_nano materials, devices, and systems for biomedical applications; actuating, sensing, control, and instrumentation for ultra-precision engineering; human-robot collaboration; robotic machining; medical robot; machine intelligence for human motion analytics; human-robot interaction for service robots; novel mechanisms, robots and applications; space robot and on-orbit service; neural learning enhanced motion planning and control for human robot interaction; medical engineering.

Human Interaction, Emerging Technologies and Future Applications IV - Tareq Ahram 2021-04-15

This book reports on research and developments in human-technology interaction. A special emphasis is given to human-computer interaction, and its implementation for a wide range of purposes such as healthcare, manufacturing, transportation, and education, among others. The human aspects are analyzed in detail. Innovative studies related to human-centered design, wearable technologies, augmented, virtual and mixed reality simulation, as well as developments and applications of machine learning and AI for different purposes, represent the core of the book. Emerging issues in business, security, and infrastructure are also critically examined, thus offering a timely, scientifically-grounded, but also professionally-oriented snapshot of the current state of the field. The book is based on contributions presented at the 4th International Conference on Human Interaction and Emerging Technologies: Future Applications, IHiet-AI 2021, held on April 28-30, 2021, in Strasbourg, France. It offers a timely survey and a practice-oriented reference guide to researchers and professionals dealing with design and/or management

of the new generation of service systems.

Embedded Robotics - Thomas Bräunl 2022-03-23

This book presents a unique examination of mobile robots and embedded systems, from introductory to intermediate level. It is structured in three parts, dealing with Embedded Systems (hardware and software design, actuators, sensors, PID control, multitasking), Mobile Robot Design (driving, balancing, walking, and flying robots), and Mobile Robot Applications (mapping, robot soccer, genetic algorithms, neural networks, behavior-based systems, and simulation). The book is written as a text for courses in computer science, computer engineering, IT, electronic engineering, and mechatronics, as well as a guide for robot hobbyists and researchers.

Using Inertial Sensors for Position and Orientation Estimation -

Manon Kok 2017

In recent years, microelectromechanical system (MEMS) inertial sensors (3D accelerometers and 3D gyroscopes) have become widely available due to their small size and low cost. Inertial sensor measurements are obtained at high sampling rates and can be integrated to obtain position and orientation information. These estimates are accurate on a short time scale, but suffer from integration drift over longer time scales. To overcome this issue, inertial sensors are typically combined with additional sensors and models. In this tutorial we focus on the signal processing aspects of position and orientation estimation using inertial sensors. We discuss different modeling choices and a selected number of important algorithms. The algorithms include optimization-based smoothing and filtering as well as computationally cheaper extended Kalman filter and complementary filter implementations. The quality of their estimates is illustrated using both experimental and simulated data.

State Estimation and Control for Low-cost Unmanned Aerial Vehicles - Chingiz Hajiyev 2015-06-10

This book discusses state estimation and control procedures for a low-cost unmanned aerial vehicle (UAV). The authors consider the use of robust adaptive Kalman filter algorithms and demonstrate their advantages over the optimal Kalman filter in the context of the difficult

and varied environments in which UAVs may be employed. Fault detection and isolation (FDI) and data fusion for UAV air-data systems are also investigated, and control algorithms, including the classical, optimal, and fuzzy controllers, are given for the UAV. The performance of different control methods is investigated and the results compared. *State Estimation and Control of Low-Cost Unmanned Aerial Vehicles* covers all the important issues for designing a guidance, navigation and control (GNC) system of a low-cost UAV. It proposes significant new approaches that can be exploited by GNC system designers in the future and also reviews the current literature. The state estimation, control and FDI methods are illustrated by examples and MATLAB® simulations. *State Estimation and Control of Low-Cost Unmanned Aerial Vehicles* will be of interest to both researchers in academia and professional engineers in the aerospace industry. Graduate students may also find it useful, and some sections are suitable for an undergraduate readership.

MATLAB Applications in Engineering - Constantin Volosencu

2022-02-02

The book presents a comprehensive overview of MATLAB and Simulink programming. Chapters discuss MATLAB programming for practical usages in mesosphere-stratosphere-troposphere (MST) radars, geometric segmentation, Bluetooth applications, and control of electric drives. The published examples highlight the capabilities of MATLAB programming in the fields of mathematical modeling, algorithmic development, data acquisition, time simulation, and testing.

World Congress on Medical Physics and Biomedical Engineering 2018 - Lenka Lhotska 2018-05-29

This book (vol. 2) presents the proceedings of the IUPESM World Congress on Biomedical Engineering and Medical Physics, a triennially organized joint meeting of medical physicists, biomedical engineers and adjoining health care professionals. Besides the purely scientific and technological topics, the 2018 Congress will also focus on other aspects of professional involvement in health care, such as education and training, accreditation and certification, health technology assessment and patient safety. The IUPESM meeting is an important forum for

medical physicists and biomedical engineers in medicine and healthcare learn and share knowledge, and discuss the latest research outcomes and technological advancements as well as new ideas in both medical physics and biomedical engineering field.

Advances in Wireless Sensor Networks - Limin Sun 2015-05-15

This book constitutes the refereed proceedings of the 8th China Conference of Wireless Sensor Networks, held in Xi'an, China, in October/November 2014. The 64 revised full papers were carefully reviewed and selected from 365 submissions. The papers are organized in topical sections on power control and management; network architecture and deployment; positioning and location-based services in wireless sensor networks; security and privacy; wireless communication systems and protocols; routing algorithm and transport protocols in wireless sensor networks; wireless communication protocols and sensor data quality, integrity and trustworthiness; Internet of Things; wireless mobile network architecture, in-vehicle network; indoor positioning and location-based services; applications of wireless sensor networks.

Smart Energy and Advancement in Power Technologies - Kumari Namrata 2022-10-21

This book comprises peer-reviewed proceedings of the International Conference on Smart Energy and Advancement in Power Technologies (ICSEAPT-2021). The book includes peer-reviewed papers on renewable energy economics and policy, renewable energy resource assessment, operations management and sustainability, energy audit, global warming, waste and resource management, green energy deployment, green buildings, integration of green energy, energy efficiency, etc. The book serves as a valuable reference resource for academics and researchers across the globe.

Smart Sensing and Context - Paul Lukowicz 2010-10-29

This volume constitutes the revised papers of the 5th European Conference on Smart Sensing and Context, EuroSSC 2010, held in Passau, Germany, in November 2010. The 13 revised full papers were carefully reviewed and selected from numerous submissions. The papers address topics such as applications; sensing; systems support; and

higher level modeling. In addition to the Conference is a short report about the Workshop on Ambient Assisted Living (AAL) Platform included. *6th World Congress of Biomechanics (WCB 2010), 1 - 6 August 2010, Singapore* - Chwee Teck Lim 2010-08-09

Biomechanics covers a wide field such as organ mechanics, tissue mechanics, cell mechanics to molecular mechanics. At the 6th World Congress of Biomechanics WCB 2010 in Singapore, authors presented the largest experimental studies, technologies and equipment. Special emphasis was placed on state-of-the-art technology and medical applications. This volume presents the Proceedings of the 6th WCB 2010 which was held in conjunction with 14th International Conference on Biomedical Engineering (ICBME) & 5th Asia Pacific Conference on Biomechanics (APBiomech). The peer reviewed scientific papers are arranged in the six themes Organ Mechanics, Tissue Mechanics, Cell Mechanics, Molecular Mechanics, Materials, Tools, Devices & Techniques, Special Topics.

Musical Robots and Interactive Multimodal Systems - Jorge Solis 2011-07-25

Musical robotics is a multi- and trans-disciplinary research area involving a wide range of different domains that contribute to its development, including: computer science, multimodal interfaces and processing, artificial intelligence, electronics, robotics, mechatronics and more. A musical robot requires many different complex systems to work together; integrating musical representation, techniques, expressions, detailed analysis and controls, for both playing and listening. The development of interactive multimodal systems provides advancements which enable enhanced human-machine interaction and novel possibilities for embodied robotic platforms. This volume is focused on this highly exciting interdisciplinary field. This book consists of 14 chapters highlighting different aspects of musical activities and interactions, discussing cutting edge research related to interactive multimodal systems and their integration with robots to further enhance musical understanding, interpretation, performance, education and enjoyment. It is dichotomized into two sections: Section I focuses on understanding

elements of musical performance and expression while Section II concentrates on musical robots and automated instruments. *Musical Robots and Interactive Multimodal Systems* provides an introduction and foundation for researchers, students and practitioners to key achievements and current research trends on interactive multimodal systems and musical robotics.

Cooperative Robots and Sensor Networks - Anis Koubâa 2013-10-01

Mobile robots and Wireless Sensor Networks (WSNs) have enabled great potentials and a large space for ubiquitous and pervasive applications. Robotics and WSNs have mostly been considered as separate research fields and little work has investigated the marriage between these two technologies. However, these two technologies share several features, enable common cyber-physical applications and provide complementary support to each other. The primary objective of book is to provide a reference for cutting-edge studies and research trends pertaining to robotics and sensor networks, and in particular for the coupling between them. The book consists of five chapters. The first chapter presents a cooperation strategy for teams of multiple autonomous vehicles to solve the rendezvous problem. The second chapter is motivated by the need to improve existing solutions that deal with connectivity prediction, and proposed a genetic machine learning approach for link-quality prediction. The third chapter presents an architecture for indoor navigation using an Android smartphone for guiding a variety of users, from sighted to the visually impaired, to their intended destination. In chapter four, the authors deal with accurate prediction modeling of ocean currents for underwater glider navigation. In chapter five, the authors discuss the challenges and limitations of RSS-based localization mechanisms and propose, EasyLoc, an autonomous and practical RSS-based localization technique that satisfies ease of deployment and implementation.

Smart Sensors and Devices in Artificial Intelligence - Dan Zhang 2021-04-07

Sensors are the eyes or/and ears of an intelligent system, such as UAV, AGV and robots. With the development of material, signal processing,

and multidisciplinary interactions, more and more smart sensors are proposed and fabricated under increasing demands for homes, the industry, and military fields. Networks of sensors will be able to enhance the ability to obtain huge amounts of information (big data) and improve precision, which also mirrors the developmental tendency of modern sensors. Moreover, artificial intelligence is a novel impetus for sensors and networks, which gets sensors to learn and think and feed more efficient results back. This book includes new research results from academia and industry, on the subject of "Smart Sensors and Networks", especially sensing technologies utilizing Artificial Intelligence. The topics include: smart sensors biosensors sensor network sensor data fusion artificial intelligence deep learning mechatronics devices for sensors applications of sensors for robotics and mechatronics devices

Wearable Wireless Devices - Qammer H. Abbasi 2020-03-18

With the growing interest in the use of technology in daily life, the potential for using wearable wireless devices across multiple segments, e.g., healthcare, sports, child monitoring, military, emergency, consumer electronics, etc., is rapidly increasing. Multibillion wearable sensors are predicted to be in use by 2025, with over 30% of them being new types of sensors that are only beginning to emerge. This book will focus on wireless wearable and implantable systems, flexible textile-based electronics, bio-electromagnetics, antennas and propagation, radio frequency (RF) circuits, sensors, security of wearables and implantable systems, nano-bio communication, and electromagnetic sensing

Fuzzy Expert Systems for Disease Diagnosis - Kumar, A.V. Senthil 2014-11-30

The development of fuzzy expert systems has provided new opportunities for problem solving amidst uncertainties. The medical field, in particular, has benefitted tremendously from advancing fuzzy system technologies. *Fuzzy Expert Systems for Disease Diagnosis* highlights the latest research and developments in fuzzy rule-based methods used in the detection of medical complications and illness. Offering emerging solutions and practical applications, this timely publication is designed for use by researchers, academicians, and students, as well as

practitioners in the medical field.

World Congress on Medical Physics and Biomedical Engineering

September 7 - 12, 2009 Munich, Germany - Olaf Dössel 2010-01-04

Present Your Research to the World! The World Congress 2009 on Medical Physics and Biomedical Engineering – the triennial scientific meeting of the IUPESM - is the world's leading forum for presenting the results of current scientific work in health-related physics and technologies to an international audience. With more than 2,800 presentations it will be the biggest conference in the fields of Medical Physics and Biomedical Engineering in 2009! Medical physics, biomedical engineering and bioengineering have been driving forces of innovation and progress in medicine and healthcare over the past two decades. As new key technologies arise with significant potential to open new options in diagnostics and therapeutics, it is a multidisciplinary task to evaluate their benefit for medicine and healthcare with respect to the quality of performance and therapeutic output. Covering key aspects such as information and communication technologies, micro- and nanosystems, optics and biotechnology, the congress will serve as an inter- and multidisciplinary platform that brings together people from basic research, R&D, industry and medical application to discuss these issues. As a major event for science, medicine and technology the congress provides a comprehensive overview and in-depth, first-hand information on new developments, advanced technologies and current and future applications. With this Final Program we would like to give you an overview of the dimension of the congress and invite you to join us in Munich! Olaf Dössel Congress President Wolfgang C.

Advances in Communication, Signal Processing, VLSI, and Embedded Systems - Shubhakar Kalya 2019-11-30

This book comprises selected peer-reviewed papers from the International Conference on VLSI, Signal Processing, Power Systems, Illumination and Lighting Control, Communication and Embedded Systems (VSPICE-2019). The contents are divided into five broad topics - VLSI and embedded systems, signal processing, power systems, illumination and control, and communication and networking. The book

focuses on the latest innovations, trends, and challenges encountered in the different areas of electronics and communication, and electrical engineering. It also offers potential solutions and provides an insight into various emerging areas such as image fusion, bio-sensors, and underwater sensor networks. This book can prove to be useful for academics and professionals interested in the various sub-fields of electronics and communication engineering.

Sensors for Gait, Posture, and Health Monitoring Volume 2 -

Thurmon Lockhart 2020-06-17

In recent years, many technologies for gait and posture assessments have emerged. Wearable sensors, active and passive in-house monitors, and many combinations thereof all promise to provide accurate measures of physical activity, gait, and posture parameters. Motivated by market projections for wearable technologies and driven by recent technological innovations in wearable sensors (MEMs, electronic textiles, wireless communications, etc.), wearable health/performance research is growing rapidly and has the potential to transform future healthcare from disease treatment to disease prevention. The objective of this Special Issue is to address and disseminate the latest gait, posture, and activity monitoring systems as well as various mathematical models/methods that characterize mobility functions. This Special Issue focuses on wearable monitoring systems and physical sensors, and its mathematical models can be utilized in varied environments under varied conditions to monitor health and performance

Maritime Technology and Engineering III - Carlos Guedes Soares

2016-12-01

Maritime Technology and Engineering 3 is a collection of papers presented at the 3rd International Conference on Maritime Technology and Engineering (MARTECH 2016, Lisbon, Portugal, 4-6 July 2016). The MARTECH Conferences series evolved from biannual national conferences in Portugal, thus reflecting the internationalization of the maritime sector. The keynote lectures and the papers, making up nearly 150 contributions, came from an international group of authors focused on different subjects in a variety of fields: Maritime Transportation,

Energy Efficiency, Ships in Ports, Ship Hydrodynamics, Ship Structures, Ship Design, Ship Machinery, Shipyard Technology, safety & Reliability, Fisheries, Oil & Gas, Marine Environment, Renewable Energy and Coastal Structures. This book will appeal to academics, engineers and professionals interested or involved in these fields.

Let's Get IoT-fied! - Anudeep Juluru 2022-09-27

Internet of Things (IoT) stands acclaimed as a widespread area of research and has definitely enticed the interests of almost the entire globe. IoT appears to be the present as well as the future technology. This book attempts to inspire readers to explore and become accustomed to IoT. Presented in a lucid and eloquent way, this book adopts a clear and crisp approach to impart the basics as expeditiously as possible. It kicks off with the very fundamentals and then seamlessly advances in such a way that the step-by-step unique approach, connection layout, and the verified codes provided for every project can enhance the intuitive learning process and will get you onboard to the world of product building. We can assure that you will be definitely raring to start developing your own IoT solutions and to get yourself completely lost in the charm of IoT. Let's start connecting the unconnected! It's time to get IoT-fied.

Instant Notes in Sport and Exercise Biomechanics - Paul Grimshaw 2019-01-08

This is the clearest and most straightforward biomechanics textbook currently available. By breaking down the challenging subject of sport and exercise biomechanics into short thematic sections, it enables students to grasp each topic quickly and easily, and provides lecturers with a flexible resource that they can use to support any introductory course on biomechanics. The book contains a wealth of useful features for teaching and learning, including clear definitions of key terms, lots of applied examples, guides to further reading, and revision questions with worked solutions. It has been significantly expanded to encompass rapidly developing areas, such as sports equipment design and modern optoelectronic motion analysis systems, and it includes a number of new sections that further develop the application of biomechanics in sports

performance and injury prevention. A new companion website includes a test bank, downloadable illustrations and, where appropriate, suggestions for learning outcomes and/or lab-based sessions for lecturers. *Instant Notes in Sport and Exercise Biomechanics* has been an invaluable course companion for thousands of students and lecturers over the last decade. Engaging, direct, and now fully refreshed, it is the only biomechanics textbook you'll ever need.

Biomechanical Biofeedback Systems and Applications - Anton Kos 2018-09-24

This book deals with the topic of biomechanical biofeedback systems and applications that are primarily aimed at motor learning in sports and rehabilitation. It gives a comprehensive tutorial of the concepts, architectures, operation, and exemplary applications of biomechanical biofeedback systems. A special section is dedicated to various constraints in designing biomechanical biofeedback systems. The book also describes the technologies needed for the adequate operation of biofeedback systems, such as motion tracking, communication, processing, and sensor technologies. In regard to technologies, the emphasis is on the assurance of the requirements of the real-time system operation. The application focus is on the usage in sport and rehabilitation, particularly in the field of accelerated motor learning and injury prevention. We include several examples of operational (real-time) biofeedback applications in golf, skiing, and swimming. The book is in the first place intended for the professional audience, researchers, and scientists in the fields connected to the topics of this book.

Intelligent Robotics and Applications - Naoyuki Kubota 2016-08-02

This two volume set LNAI 9834 and 9835 constitutes the refereed proceedings of the 9th International Conference on Intelligent Robotics and Applications, ICIRA 2016, held in Tokyo, Japan, in August 2016. The 114 papers presented were carefully reviewed and selected from 148 submissions. The papers are organized in topical sections such as Robot Control; Robot Mechanism, Robot Vision and Sensing; Planning, Localization, and Mapping; Interactive Intelligence; Cognitive Robotics; Bio-Inspired Robotics; Smart Material Based Systems; Mechatronics

Systems for Nondestructive Testing; Social Robotics; Human Support Robotics; Assistive Robotics; Intelligent Space; Sensing and Monitoring in Environment and Agricultural Sciences; Human Data Analysis; Robot Hand.

Modern Methods for Affordable Clinical Gait Analysis - Anup Nandy
2021-07-27

Modern Methods for Affordable Clinical Gait Analysis: Theories and Applications in Healthcare Systems is a handbook of techniques, tools and procedures for the study and improvement of human gait. It gives a concise description of clinical gait analysis, especially gait abnormality detection problems and therapeutic interventions using inexpensive devices. A brief demonstration on validation testing of these devices for its clinical applicability is also presented. Content coverage also includes step-by-step processing of the data acquired from these devices. Future perspectives of low-cost clinical gait assessment systems are explored. This book bridges the gap between engineering and biomedical fields as it diagnoses and monitors neuro-musculoskeletal abnormalities using the latest technologies. The authors discuss how early detection technology allows us to take precautionary measures, in order to delay the degeneration process, through development of a clinical gait analysis tool. One unique feature of this book is that it pays significant attention to the challenges of conducting gait analysis in developing countries with limited resources. This reference will guide you through setting up a low-cost gait analysis lab. It explores the relationship between vision-based pathological gait detection, the design of tools for gait diagnosis and therapeutic interventions. Provides a concise tutorial on affordable clinical gait analysis. Analyses clinical validation of low-cost sensors for gait assessment. Documents recent and state-of-the-art low-cost gait abnormality detection systems and therapeutic intervention procedures.

Computing and Network Sustainability - H.R. Vishwakarma 2017-07-05
The book is compilation of technical papers presented at International Research Symposium on Computing and Network Sustainability (IRSCNS 2016) held in Goa, India on 1st and 2nd July 2016. The areas covered in the book are sustainable computing and security, sustainable systems

and technologies, sustainable methodologies and applications, sustainable networks applications and solutions, user-centered services and systems and mobile data management. The novel and recent technologies presented in the book are going to be helpful for researchers and industries in their advanced works.

Proceedings of the 2022 USCToMM Symposium on Mechanical Systems and Robotics - Pierre Larochelle 2022

This volume gathers the latest fundamental research contributions, innovations, and applications in the field of design and analysis of complex robotic mechanical systems, machines, and mechanisms, as presented by leading international researchers at the 2nd USCToMM Symposium on Mechanical Systems and Robotics (USCToMM MSR), held in Rapid City, South Dakota, USA on May 19-21, 2022. It covers highly diverse topics, including soft, wearable and origami robotic systems; applications to walking, flying, climbing, underground, swimming and space systems; human rehabilitation and performance augmentation; design and analysis of mechanisms and machines; human-robot collaborative systems; service robotics; mechanical systems and robotics education; and the commercialization of mechanical systems and robotics. The contributions, which were selected by means of a rigorous international peer-review process, highlight numerous exciting and impactful research results that will inspire novel research directions and foster multidisciplinary research collaborations among researchers from around the globe.

Theory of Gyroscopic Effects for Rotating Objects - Ryspek Usubamatov
2022-08-01

This book highlights an analytical solution for the dynamics of axially rotating objects. It also presents the theory of gyroscopic effects, explaining their physics and using mathematical models of Euler's form for the motion of movable spinning objects to demonstrate these effects. The major themes and approaches are represented by the spinning disc and the action of the system of interrelated inertial torques generated by the centrifugal and Coriolis forces, as well as the change in the angular momentum. The interrelation of inertial torques is based on the

dependency of the angular velocities of the motions of the spinning objects around axes by the principle of mechanical energy conservation. These kinetically interrelated torques constitute the fundamental principles of the mechanical gyroscope theory that can be used for any rotating objects of different designs, like rings, cones, spheres, paraboloids, propellers, etc. Lastly, the mathematical models for the gyroscopic effects are validated by practical tests. The 2nd edition became necessary due to new development and corrections of mathematical expressions: It contains new chapters about the Tippe top inversion and inversion of the spinning object in an orbital flight and the boomerang aerodynamics.

Field and Service Robotics - Luis Mejias 2014-07-15

FSR, the International Conference on Field and Service Robotics, is a robotics Symposium which has established over the past ten years the latest research and practical results towards the use of field and service robotics in the community with particular focus on proven technology. The first meeting was held in Canberra, Australia, in 1997. Since then the meeting has been held every two years in the pattern Asia, America, Europe. Field robots are non-factory robots, typically mobile, that operate in complex and dynamic environments; on the ground (of earth or planets), under the ground, underwater, in the air or in space. Service robots are those that work closely with humans to help them with their lives. This book present the results of the ninth edition of Field and Service Robotics, FSR13, held in Brisbane, Australia on 9th-11th December 2013. The conference provided a forum for researchers, professionals and robot manufactures to exchange up-to-date technical knowledge and experience. This book offers a collection of a broad range of topics including: Underwater Robots and Systems, Unmanned Aerial Vehicles technologies and applications, Agriculture, Space, Search and Rescue and Domestic Robotics, Robotic Vision, Mapping and Recognition.

Motion Deblurring - A. N. Rajagopalan 2014-05-08

Comprehensive guide to the restoration of images degraded by motion blur, encompassing algorithms and architectures, with novel

computational photography methods.

Advances in Electronic Commerce, Web Application and Communication - David Jin 2012-02-24

ECWAC2012 is an integrated conference devoted to Electronic Commerce, Web Application and Communication. In the this proceedings you can find the carefully reviewed scientific outcome of the second International Conference on Electronic Commerce, Web Application and Communication (ECWAC 2012) held at March 17-18,2012 in Wuhan, China, bringing together researchers from all around the world in the field.

Theory and Practice of Computation - Shin-ya Nishizaki 2019-09-20

This volume contains the papers presented at the 8th Workshop on Computing: Theory and Practice, WCTP 2018 and is devoted to theoretical and practical approaches to computation. The conference was organized by four top universities in Japan and the Philippines: the Tokyo Institute of Technology, Osaka University, the University of the Philippines Diliman, and De La Salle University. The proceedings provide a broad view of the recent developments in computer science research in Asia, with an emphasis on Japan and the Philippines. The papers focus on both theoretical and practical aspects of computations, such as programming language theory, modeling of software systems, empathic computing, and various applications of information technology. The book will be of interest to academic and industrial researchers interested in recent developments in computer science research.

Guide to Geometric Algebra in Practice - Leo Dorst 2011-08-28

This highly practical Guide to Geometric Algebra in Practice reviews algebraic techniques for geometrical problems in computer science and engineering, and the relationships between them. The topics covered range from powerful new theoretical developments, to successful applications, and the development of new software and hardware tools. Topics and features: provides hands-on review exercises throughout the book, together with helpful chapter summaries; presents a concise introductory tutorial to conformal geometric algebra (CGA) in the appendices; examines the application of CGA for the description of rigid

body motion, interpolation and tracking, and image processing; reviews the employment of GA in theorem proving and combinatorics; discusses the geometric algebra of lines, lower-dimensional algebras, and other alternatives to 5-dimensional CGA; proposes applications of coordinate-free methods of GA for differential geometry.

Intelligent Information Processing for Inertial-Based Navigation Systems - Chong Shen 2021-01-04

This book introduces typical inertial devices and inertial-based integrated navigation systems, gyro noise suppression, gyro temperature drift error modeling compensation, inertial-based integrated navigation systems under discontinuous observation conditions, and inertial-based brain integrated navigation systems. Integrated navigation is the result of the development of modern navigation theory and technology. The inertial navigation system has the advantages of strong autonomy, high short-term accuracy, all-day time, all weather, and so on. And it has been applied in most integrated navigation systems. Among them, the information processing of inertial-based integrated navigation system is the core technology. Due to the effect of the device mechanism and working environment, there are errors in the output information of the inertial-based integrated navigation system, including gyroscope noise, temperature drift, and discontinuous observations, which will seriously reduce the accuracy and robustness of the system. And the book helps readers to solve these problems. The intelligent information processing technology involved is equipped with simulation verification, which can be used as a reference for undergraduate, graduate, and Ph.D. students, and also scientific researchers or engineers engaged in navigation-related specialties.

NSCA's Essentials of Sport Science - NSCA -National Strength & Conditioning Association 2021-02-19

NSCA's Essentials of Sport Science provides the most contemporary and comprehensive overview of the field of sport science and the role of the sport scientist. It is a primary preparation resource for the Certified Performance and Sport Scientist (CPSS) certification exam.

Biosignal Processing and Computational Methods to Enhance

Sensory Motor Neuroprosthetics - Mitsuhiro Hayashibe 2016-01-22

Though there have been many developments in sensory/motor prosthetics, they have not yet reached the level of standard and worldwide use like pacemakers and cochlear implants. One challenging issue in motor prosthetics is the large variety of patient situations, which depending on the type of neurological disorder. To improve neuroprosthetic performance beyond the current limited use of such systems, robust bio-signal processing and model-based control involving actual sensory motor state (with biosignal feedback) would bring about new modalities and applications, and could be a breakthrough toward adaptive neuroprosthetics. Recent advances of Brain Computer Interfaces (BCI) now enable patients to transmit their intention of movement. However, the functionality and controllability of motor prosthetics itself can be further improved to take advantage of BCI interfaces. In this Research Topic we welcome contribution of original research articles, computational and experimental studies, review articles, and methodological advances related to biosignal processing that may enhance the functionality of sensory motor neuroprosthetics. The scope of this topic includes, but is not limited to, studies aimed at enhancing: 1) computational biosignal processing in EMG (Electromyography), EEG (Electroencephalography), and other modalities of biofeedback information; 2) the computational method in modeling and control of sensory motor neuroprosthetics; 3) the systematic functionality aiming to provide solutions for specific pathological movement disorders; 4) human interfaces such as BCI - but in the case of BCI study, manuscripts should be experimental studies which are applied to sensory/motor neuroprosthetics in patients with motor disabilities.

Recent Advances in Biomedical Signal Processing - Juan Manuel Górriz 2011

"Biomedical signal processing is a rapidly expanding field with a wide range of applications, from the construction of artificial limbs and aids for disabilities to the development of sophisticated medical imaging systems. Acquisition and processing of bio"

Next Wave in Robotics - Tzue-Hseng S. Li 2011-08-25

This book constitutes the refereed proceedings of the 14th RoboWorld Cup and Congress of the Federation of International Robosoccer Association, FIRA 2011, held in Kaohsiung, Taiwan in August 2011. The 34 revised papers presented were carefully reviewed and selected for inclusion in the proceedings out of a total of 110 contributed papers presented at FIRA 2011. The papers address a broad variety of current topics in robotics research, particularly in robot soccer.

Universal Access in Human-Computer Interaction. Methods, Technologies, and Users - Margherita Antona 2018-07-09

This two-volume set LNCS 10907 and 10908 constitutes the refereed proceedings of the 12th International Conference on Universal Access in Human-Computer Interaction, UAHCI 2018, held as part of HCI International 2018 in Las Vegas, NV, USA, in July 2018. The total of 1170 papers and 195 posters included in the 30 HCII 2018 proceedings volumes was carefully reviewed and selected from 4373 submissions. The

49 papers presented in this volume were organized in topical sections named: design for all, accessibility and usability; alternative I/O techniques, multimodality and adaptation; non-visual interaction; and designing for cognitive disabilities.

Handbook of Research on ICTs for Human-Centered Healthcare and Social Care Services - Cruz-Cunha, Maria Manuela 2013-04-30

In addition to creating the opportunity for collaboration, transformation, and innovation in the healthcare industry, technology plays an essential role in the development of human well-being and psychological growth. Handbook of Research on ICTs for Human-Centered Healthcare and Social Services is a comprehensive collection of relevant research on technology and its developments of ICTs in healthcare and social services. This book focuses on the emerging trends in the social and healthcare sectors such as social networks, security of ICTs, and advisory services, beneficial to researchers, scholars, students, and practitioners to further their interest in technological advancements.