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The IoT Physical Layer May 05 2020 This book documents some of the most recent advances on the physical layer of the Internet of Things (IoT), including sensors, circuits, and systems. The application area selected for illustrating these advances is that of autonomous, wearable systems for real-time medical diagnosis. The book is unique in that it adopts a holistic view of such systems and includes not only the sensor and processing subsystems, but also the power, communication, and security subsystems. Particular attention is paid to the integration of these IoT subsystems as well as the prototyping platforms needed for achieving such integration. Other unique features include the discussion of energy-harvesting subsystems to achieve full energy autonomy and the consideration of hardware security as a requirement for the integrity of the IoT physical layer. One unifying thread of the various designs considered in this book is that they have all been fabricated and tested in an advanced, low-power CMOS process, namely GLOBALFOUNDRIES 65nm CMOS LPe.

Advances in Body Area Networks I Jul 31 2022 This book presents the post-proceedings, including all revised versions of the accepted papers, of the 2017 European Alliance for Innovation (EAI) International Conference on Body Area Networks (BodyNets 2017). The goal of BodyNets 2017 was to provide a world-leading and unique forum, bringing together researchers and practitioners from diverse disciplines to plan, analyze, design, build, deploy and experiment with/on Body Area Networks (BANs).

Principles and Practice of Multi-Agent Systems Aug 27 2019 This book constitutes the thoroughly refereed post-workshop proceedings of the 5th International Workshop on Empathic Computing, IWECC 2014, co-located with PRICAI 2014, held in Gold Coast, QLD, Australia, in December 2014, as well as the 6th International Workshop on Empathic Computing, IWECC 2015, and the 15th Workshop on Computational Models of Natural Argument, CMNA XV, both co-located with PRIMA 2015, held in Bertinoro, Italy, in October 2015. The 12 papers presented were carefully reviewed and selected from 32 initial submissions. The workshops are going alongside with the PRIMA 2015 Conference and are intended to facilitate active exchange, interaction and comparison of approaches, methods and various ideas in specific areas related to intelligent agent systems and multiagent systems.

Computer Science and its Applications Apr 03 2020 The 6th FTRA International Conference on Computer Science and its Applications (CSA-14) will be held in Guam, USA, Dec. 17 - 19, 2014. CSA-14 presents a comprehensive conference focused on the various aspects of advances in engineering systems in computer science, and applications, including ubiquitous computing, U-Health care system, Big Data, UI/UX for human-centric computing, Computing Service, Bioinformatics and Bio-Inspired Computing and will show recent advances on various aspects of computing technology, Ubiquitous Computing Services and its application.

Research Progress in Nano and Intelligent Materials Nov 22 2021 Research Progress in Nano and Intelligent Materials presents a broad selection of chapters on leading-edge research from top international researchers on various applications of nano and intelligent materials. The collection of topics in this book aims to reflect the diversity of recent advances in nano and intelligent materials with a broad perspective that will be useful for scientists as well as for graduate students and engineers. Chapters present a range of research, from new methods to novel applications of existing methods to foster the understanding of the material and/or structural behavior of new and advanced systems. Topics include: Updates on pan monofilament in nanoscale The development of flexible electrode using inkjet printing of silver nanoparticles Supreme EMI shielding using electroless plating of metallic nanoparticles on cotton fabric Inkjet deposited circuit components Reinforcing chitosan/poly(vinyl alcohol) nanofiber scaffolds using Single-walled carbon nanotube for neural tissue engineering Wireless wearable ECG monitoring system Conductive chitosan nanofiber Progress in production of nanofiber web

Autonomous Sensor Networks Sep 28 2019 This volume surveys recent research on autonomous sensor networks from the perspective of enabling technologies that support medical, environmental and military applications. State of the art, as well as emerging concepts in wireless sensor networks, body area networks and ambient assisted living introduce the reader to the field, while subsequent chapters deal in depth with established and related technologies, which render their implementation possible. These range from smart textiles and printed electronic devices to implanted devices and specialized packaging, including the most relevant technological features. The last four chapters are devoted to customization, implementation difficulties and outlook for these technologies in specific applications.

Distributed Computing and Monitoring Technologies for Older Patients Nov 30 2019 This book summarizes various approaches for the automatic detection of health threats to older patients at home living alone. The text begins by briefly describing those who would most benefit from healthcare supervision. The book then summarizes possible scenarios for monitoring an older patient at home, deriving the common functional requirements for monitoring technology. Next, the work identifies the state of the art of technological monitoring approaches that are practically applicable to geriatric patients. A survey is presented on a range of such interdisciplinary fields as smart homes, telemonitoring, ambient intelligence, ambient assisted living, gerontechnology, and aging-in-place technology. The book discusses relevant experimental studies, highlighting the application of sensor fusion, signal processing and machine learning techniques. Finally, the text discusses future challenges, offering a number of suggestions for further research directions.

Liquid Metal Biomaterials Jan 25 2022 This is the first-ever book to illustrate the principles and applications of liquid metal biomaterials. Room-temperature liquid metal materials are rapidly emerging as next-generation functional materials that display many unconventional properties superior to those of conventional biomaterials. Their outstanding, unique versatility ("one

material, diverse capabilities”) opens many exciting opportunities for the medical sciences. The book reviews representative applications of liquid metal biomaterials from both therapeutic and diagnostic aspects. It also discusses related efforts to employ liquid metals to overcome today’s biomedical challenges. It will provide readers with a comprehensive understanding of the technical advances and fundamental discoveries on the frontier, and thus equip them to investigate and utilize liquid metal biomaterials to tackle various critical problems.

Foundations of High Performance Polymers Jul 07 2020 This book presents some fascinating phenomena associated with the remarkable features of high performance polymers and also provides an update on applications of modern polymers. It offers new research on structure-property relationships, synthesis and purification, and potential applications of high performance polymers. The collection of topics in this book reflects the diversity of recent advances in modern polymers with a broad perspective that will be useful for scientists as well as for graduate students and engineers. The book opens with a presentation of classical models, moving on to increasingly more complex quantum mechanical and dynamical theories. Coverage and examples are drawn from modern polymers. Topics include high performance polymers and computer science integration in biochemical, green polymers, molecular nanotechnology, and industrial chemistry.

6th International Conference on the Development of Biomedical Engineering in Vietnam (BME6) Jan 05 2023 Under the motto “Healthcare Technology for Developing Countries” this book publishes many topics which are crucial for the health care systems in upcoming countries. The topics include Cyber Medical Systems Medical Instrumentation Nanomedicine and Drug Delivery Systems Public Health Entrepreneurship This proceedings volume offers the scientific results of the 6th International Conference on the Development of Biomedical Engineering in Vietnam, held in June 2016 at Ho Chi Minh City.

VLSI-SoC: Design for Reliability, Security, and Low Power Apr 27 2022 This book contains extended and revised versions of the best papers presented at the 23rd IFIP WG 10.5/IEEE International Conference on Very Large Scale Integration, VLSI-SoC 2015, held in Daejeon, Korea, in October 2015. The 10 papers included in the book were carefully reviewed and selected from the 44 full papers presented at the conference. The papers cover a wide range of topics in VLSI technology and advanced research. They address the current trend toward increasing chip integration and technology process advancements bringing about new challenges both at the physical and system-design levels, as well as in the test of these systems.

XII Mediterranean Conference on Medical and Biological Engineering and Computing 2010 Oct 02 2022 Over the past three decades, the exploding number of new technologies and applications introduced in medical practice, often powered by advances in biosignal processing and biomedical imaging, created an amazing account of new possibilities for diagnosis and therapy, but also raised major questions of appropriateness and safety. The accelerated development in this field, alongside with the promotion of electronic health care solutions, is often on the basis of an uncontrolled diffusion and use of medical technology. The emergence and use of medical devices is multiplied rapidly and today there exist more than one million different products available on the world market. Despite the fact that the rising cost of health care, partly resulting from the new emerging technological applications, forms the most serious and urgent problem for many governments today, another important concern is that of patient safety and user protection, issues that should never be compromised and expelled from the Biomedical Engineering research practice agenda.

Wearable Technologies: Concepts, Methodologies, Tools, and Applications Nov 03 2022
Advances in technology continue to alter the ways in which we conduct our lives, from the private sphere to how we interact with others in public. As these innovations become more integrated into modern society, their applications become increasingly relevant in various facets of life. *Wearable Technologies: Concepts, Methodologies, Tools, and Applications* is a comprehensive reference source for the latest scholarly material on the development and implementation of wearables within various environments, emphasizing the valuable resources offered by these advances. Highlighting a range of pertinent topics, such as assistive technologies, data storage, and health and fitness applications, this multi-volume book is ideally designed for researchers, academics, professionals, students, and practitioners interested in the emerging applications of wearable technologies.

Connected Health in Smart Cities Jun 05 2020
This book reports on the theoretical foundations, fundamental applications and latest advances in various aspects of connected services for health information systems. The twelve chapters highlight state-of-the-art approaches, methodologies and systems for the design, development, deployment and innovative use of multisensory systems and tools for health management in smart city ecosystems. They exploit technologies like deep learning, artificial intelligence, augmented and virtual reality, cyber physical systems and sensor networks. Presenting the latest developments, identifying remaining challenges, and outlining future research directions for sensing, computing, communications and security aspects of connected health systems, the book will mainly appeal to academic and industrial researchers in the areas of health information systems, smart cities, and augmented reality.

Body Sensors and Electrocardiography Oct 22 2021
This monograph presents a comprehensive overview of the electrocardiography from the aspect of wireless and mobile monitoring and its potential for personalized health management. The topical focus is on the implementation and efficient application of user friendly m-Health systems. The target audience comprises biomedical engineers, medical doctors, students, industrial experts and health managers developing m-Health solutions.

PHealth 2015 Apr 15 2021
Smart mobile systems, smart textiles, smart implants and sensor controlled medical devices are among the recent developments which have become important enablers for telemedicine and next-generation health services. Social media and gamification have added yet another dimension to Personalized Health (pHealth). This book presents the proceedings of pHealth 2015, the 12th International Conference on Wearable Micro and Nano Technologies for Personalized Health, held in Västerås, Sweden, in June 2015. The conference addressed mobile technologies, knowledge-driven applications and computer-assisted decision support, as well as apps designed to support the elderly and those with chronic conditions in their daily lives. The 23 conference papers, three keynotes and two specially invited contributions included here address the fundamental scientific and methodological challenges of adaptive, autonomous and intelligent pHealth approaches. Participants at this truly interdisciplinary conference included representatives from all relevant stakeholder communities, and the topics covered will be of interest to all those whose work involves improving the quality of medical services, optimizing industrial competitiveness and managing healthcare costs.

Wireless Computing in Medicine Sep 01 2022
Provides a comprehensive overview of wireless computing in medicine, with technological, medical, and legal advances. This book brings together the latest work of leading scientists in the disciplines of Computing, Medicine, and

Law, in the field of Wireless Health. The book is organized into three main sections. The first section discusses the use of distributed computing in medicine. It concentrates on methods for treating chronic diseases and cognitive disabilities like Alzheimer's, Autism, etc. It also discusses how to improve portability and accuracy of monitoring instruments and reduce the redundancy of data. It emphasizes the privacy and security of using such devices. The role of mobile sensing, wireless power and Markov decision process in distributed computing is also examined. The second section covers nanomedicine and discusses how the drug delivery strategies for chronic diseases can be efficiently improved by Nanotechnology enabled materials and devices such as MENs and Nanorobots. The authors will also explain how to use DNA computation in medicine, model brain disorders and detect bio-markers using nanotechnology. The third section will focus on the legal and privacy issues, and how to implement these technologies in a way that is a safe and ethical. Defines the technologies of distributed wireless health, from software that runs cloud computing data centers, to the technologies that allow new sensors to work Explains the applications of nanotechnologies to prevent, diagnose and cure disease Includes case studies on how the technologies covered in the book are being implemented in the medical field, through both the creation of new medical applications and their integration into current systems Discusses pervasive computing's organizational benefits to hospitals and health care organizations, and their ethical and legal challenges Wireless Computing in Medicine: From Nano to Cloud with Its Ethical and Legal Implications is written as a reference for computer engineers working in wireless computing, as well as medical and legal professionals. The book will also serve students in the fields of advanced computing, nanomedicine, health informatics, and technology law.

International Conference on Intelligent Emerging Methods of Artificial Intelligence & Cloud Computing Sep 08 2020 This book consists of different accepted papers of the conference. Firstly, the artificial intelligence and its application-related topics are provided. Secondly, cloud computing and related topics are also provided. The book has been designed to help research organisations and business leaders from across industries to transform their organisations into AI-driven disruptors. The utility of the technology in the face of massive globally interconnected complexity is explored. The significant characteristics of IEMAICLOUD are the promotion of inevitable dialogue between scientists, researchers, engineers, corporate's and scholar's students to mitigate the gap between academia, industry and governmental ethics which has been fostered through keynote speeches, workshops, panel discussion and oral presentations by eminent researchers in relevant field. The industry personnel depict cutting-edge researches in artificial intelligence and cloud computing to convey academia regarding real-time scenario and practical findings. Conference has been well equipped with talks by industry experts on the state of the art in computer science, lectures by eminent scientists designed to inspire and inform presentations by innovative researchers coming from 20+ countries from Europe and abroad. There has been discussion-oriented sessions and networking breaks to enable collaborations. Papers consist abstract, result, discussions and conclusions by the help of different tables and diagrams.

14th Nordic-Baltic Conference on Biomedical Engineering and Medical Physics Mar 03 2020
14th Nordic - Baltic Conference on Biomedical Engineering and Medical Physics - NBC-2008 - brought together scientists not only from the Nordic - Baltic region, but from the entire world. This volume presents the Proceedings of this international conference, jointly organized by the Latvian Medical Engineering and Physics Society, Riga Technical University and University of Latvia in close cooperation with International Federation of Medical and Biological Engineering

(IFMBE) The topics covered by the Conference Proceedings include: Biomaterials and Tissue Engineering; Biomechanics, Artificial Organs, Implants and Rehabilitation; Biomedical Instrumentation and Measurements, Biosensors and Transducers; Biomedical Optics and Lasers; Healthcare Management, Education and Training; Information Technology to Health; Medical Imaging, Telemedicine and E-Health; Medical Physics; Micro- and Nanoobjects, Nanostructured Systems, Biophysics

Internet of Medical Things Oct 10 2020 This book looks at the growing segment of Internet of Things technology (IoT) known as Internet of Medical Things (IoMT), an automated system that aids in bridging the gap between isolated and rural communities and the critical healthcare services that are available in more populated and urban areas. Many technological aspects of IoMT are still being researched and developed, with the objective of minimizing the cost and improving the performance of the overall healthcare system. This book focuses on innovative IoMT methods and solutions being developed for use in the application of healthcare services, including post-surgery care, virtual home assistance, smart real-time patient monitoring, implantable sensors and cameras, and diagnosis and treatment planning. It also examines critical issues around the technology, such as security vulnerabilities, IoMT machine learning approaches, and medical data compression for lossless data transmission and archiving. Internet of Medical Things is a valuable reference for researchers, students, and postgraduates working in biomedical, electronics, and communications engineering, as well as practicing healthcare professionals.

CMOS IC Design for Wireless Medical and Health Care Jun 17 2021 This book provides readers with detailed explanation of the design principles of CMOS integrated circuits for wireless medical and health care, from the perspective of two successfully-commercialized applications. Design techniques for both the circuit block level and the system level are discussed, based on real design examples. CMOS IC design techniques for the entire signal chain of wireless medical and health care systems are covered, including biomedical signal acquisition, wireless transceivers, power management and SoC integration, with emphasis on ultra-low-power IC design techniques.

Handbook of Research on Securing Cloud-Based Databases with Biometric Applications Jan 31 2020 Cloud technologies have revolutionized the way we store information and perform various computing tasks. With the rise of this new technology, the ability to secure information stored on the cloud becomes a concern. The Handbook of Research on Securing Cloud-Based Databases with Biometric Applications explores the latest innovations in promoting cloud security through human authentication techniques. Exploring methods of access by identification, including the analysis of facial features, fingerprints, DNA, dental characteristics, and voice patterns, this publication is designed especially for IT professionals, academicians, and upper-level students seeking current research surrounding cloud security.

Wearable Wireless Devices Dec 04 2022 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

Connected E-Health Feb 11 2021 With rise of smart medical sensors, cloud computing and

the health care technologies, "connected health" is getting remarkable consideration everywhere. Recently, the Internet of Things (IoT) has brought the vision of a smarter world into reality. Cloud computing fits well in this scenario as it can provide high quality of clinical experience. Thus an IoT-cloud convergence can play a vital role in healthcare by offering better insight of heterogeneous healthcare content supporting quality care. It can also support powerful processing and storage facilities of huge data to provide automated decision making. This book aims to report quality research on recent advances towards IoT-Cloud convergence for smart healthcare, more specifically to the state-of-the-art approaches, design, development and innovative use of those convergence methods for providing insights into healthcare service demands. Students, researchers, and medical experts in the field of information technology, medicine, cloud computing, soft computing technologies, IoT and the related fields can benefit from this handbook in handling real-time challenges in healthcare. Current books are limited to focus either on soft computing algorithms or smart healthcare. Integration of smart and cloud computing models in healthcare resulting in connected health is explored in detail in this book.

Biomedical and Clinical Engineering for Healthcare Advancement Dec 24 2021 The rapid development of new technologies has created a lasting impact in the healthcare sector during the past decades. Due to this influence, potential clinical problems have decreased while the quality of healthcare delivery and overall user friendliness has increased and contributed to cost-effective healthcare systems. Biomedical and Clinical Engineering for Healthcare Advancement is an essential reference source that discusses growth in healthcare applications driven by the adoption of new technologies, as well as the expansion of machine learning algorithms for clinical decision making. It focuses on combining vision, motion, data acquisition, and automated control to accelerate the development of affordable and portable medical devices. Featuring research on topics such as artificial intelligence, drug delivery, and retinal imaging, this book is ideally designed for healthcare professionals, biomedical engineers, biomedical professionals, clinicians, hospital directors, physicians, medical students, and clinical researchers.

Compressive Sensing for Wireless Communication May 17 2021 Compressed Sensing (CS) is a promising method that recovers the sparse and compressible signals from severely under-sampled measurements. CS can be applied to wireless communication to enhance its capabilities. As this technology is proliferating, it is possible to explore its need and benefits for emerging applications. Compressive Sensing for Wireless Communication provides:

- A clear insight into the basics of compressed sensing
- A thorough exploration of applying CS to audio, image and computer vision
- Different dimensions of applying CS in Cognitive radio networks
- CS in wireless sensor network for spatial compression and projection
- Real world problems/projects that can be implemented and tested
- Efficient methods to sample and reconstruct the images in resource constrained WMSN environment

This book provides the details of CS and its associated applications in a thorough manner. It lays a direction for students and new engineers and prepares them for developing new tasks within the field of CS. It is an indispensable companion for practicing engineers who wish to learn about the emerging areas of interest.

Computational Science and Its Applications -- ICCSA 2009 Mar 15 2021 The two-volume set LNCS 5592 and 5593 constitutes the refereed proceedings of the International Conference on Computational Science and Its Applications, ICCSA 2009, held in Seoul, Korea, in June/July, 2009. The two volumes contain papers presenting a wealth of original research results in the field of computational science, from foundational issues in computer science and mathematics

to advanced applications in virtually all sciences making use of computational techniques. The topics of the fully refereed papers are structured according to the five major conference themes: computational methods, algorithms and scientific applications, high performance technical computing and networks, advanced and emerging applications, as well as information systems and information technologies. Moreover, submissions from more than 20 workshops and technical sessions contribute to this publication. These cover topics such as geographical analysis, urban modeling, spatial statistics, wireless and ad hoc networking, logical, scientific and computational aspects of pulse phenomena in transitions, high-performance computing and information visualization, sensor network and its applications, molecular simulations structures and processes, collective evolutionary systems, software engineering processes and applications, molecular simulations structures and processes, internet communication security, security and privacy in pervasive computing environments, and mobile communications.

Polypyrrole (PPy) Coated Patterned Vertical Carbon Nanotube (pvCNT) Dry ECG Electrode Integrated with a Novel Wireless Resistive Analog Passive (WRAP) ECG Sensor Jan 13 2021

Biopotential signals such as electroencephalography (EEG), electrocardiography (ECG or EKG), electrooculogram (EOG), and electromyography (EMG) play vital roles in health and clinical diagnoses, monitoring, and therapy. In addition, these signals are required for many nonclinical applications such as Neurofeedback and Brain-Computer Interface (BCI). The quality of the measurement relies on the electrical and mechanical properties of the electrode. Conventional wet or gel impedimetric electrodes provide an excellent signal due to the conductive fluids or gel, which reduces the skin-contact impedance and maintains contact during movement. However, they operate for a short duration; the quality of the signal degrades due to the fluid or gel drying out. Dry electrodes promise the ability for long duration sensing and avoiding the drawbacks of the wet/gel electrodes. However, dry electrodes suffer from high interfacing impedance. In this work, dry electrodes based on Carbon Nanotube (CNT) are presented. The CNTs were fabricated in a Vertical Pattern (pvCNT) on a circular stainless steel foil substrate with a diameter of 10 mm and thickness of 2 mils. The pattern on the substrate was developed with a custom shadow mask using sputter coating with Al₂O₃ and iron. Electrically conductive multi-walled CNTs were grown in patterned pillar formation with a square base of 100 μm each side, with an inter-pillar spacing of 50, 100, 200 and 500 μm, and heights between 1 to 1.5 mm. The impedances of the electrodes were 1.92, 3.11, and 8.15 kΩ for 50, 100, and 200 μm spacing, respectively. A comparative in vitro study with commercial wet and gel electrodes showed pvCNT electrode has lower interfacial impedance for a long-term period, comparable signal capture quality, and ability to be used for stimulation. Coating the electrodes by a conductive polymer (Polypyrrole or PPy) is used to improve the mechanical properties of the CNTs. The coating procedure involved applying 10 μL of PPy after preparing the pvCNT with 70% ethyl alcohol solution and flash drying at 300°C. The impedance of the coated version of pvCNT has slightly increased compared to the non-coated pvCNT version and stayed lower than the electrical impedance of the commercial electrodes. Mechanical tests showed the PPy coated pvCNT has stronger adhesion to the Stainless Steel (SS) substrate. The results demonstrate the feasibility of coating pvCNT dry electrodes with PPy for robustness. Furthermore, we explore the use of this dry electrode for wearable ECG sensors. Fully passive sensors, which are zero power and battery-less, can make wearable devices more practical by eliminating the contact wires subsequently decreasing the weight, costly and high-maintenance batteries. We have previously developed a novel technique of Wireless

Resistive Analog Passive (WRAP) sensor based on resistive transducers. The scanner transmits an RF signal at an ISM frequency band (e.g. 8.37 MHz) which is amplitude modulated based on the resistive changes by a transducer. The modulated signal is then captured and analyzed on the scanner or downstream on the users smartphone. In this work, we have proposed a novel conjugate coil pair technique for WRAP sensors and demonstrated the capability for differential signal capture, such as electrocardiogram (ECG or EKG). The WRAP ECG sensor uses an N-channel dual-gate MOSFET (depletion mode) to convert the biopotential signal to the correlated resistive variation of RSD (Source to Drain Resistance). The system was able to cancel the common mode signal and only transmitted differential mode signals. The results show that connecting a pair of sensors in this way could allow accurate measurement of a differential biopotential. This work demonstrates voltage sensitivity down to 40 V towards realizing a battery-less, body-worn WRAP ECG sensor for monitoring ECG signals while the signal is collected using pVCNT electrodes..

11th Mediterranean Conference on Medical and Biological Engineering and Computing 2007
Mar 27 2022 Biomedical engineering brings together bright minds from diverse disciplines, ranging from engineering, physics, and computer science to biology and medicine. This book contains the proceedings of the 11th Mediterranean Conference on Medical and Biological Engineering and Computing, MEDICON 2007, held in Ljubljana, Slovenia, June 2007. It features relevant, up-to-date research in the area.

Biometrics: Concepts, Methodologies, Tools, and Applications Jan 01 2020 Security and authentication issues are surging to the forefront of the research realm in global society. As technology continues to evolve, individuals are finding it easier to infiltrate various forums and facilities where they can illegally obtain information and access. By implementing biometric authentications to these forums, users are able to prevent attacks on their privacy and security. Biometrics: Concepts, Methodologies, Tools, and Applications is a multi-volume publication highlighting critical topics related to access control, user identification, and surveillance technologies. Featuring emergent research on the issues and challenges in security and privacy, various forms of user authentication, biometric applications to image processing and computer vision, and security applications within the field, this publication is an ideal reference source for researchers, engineers, technology developers, students, and security specialists.

XXVII Brazilian Congress on Biomedical Engineering Sep 20 2021 This book presents cutting-edge research and developments in the field of Biomedical Engineering. It describes both fundamental and clinically-oriented findings, highlighting advantages and challenges of innovative methods and technologies, such as artificial intelligence, wearable devices and neuroengineering, important issues related to health technology management and human factors in health, and new findings in biomechanical analysis and modeling. Gathering the proceedings of the XXVII Brazilian Congress on Biomedical Engineering, CBEB 2020, held on October 26-30, 2020, in Vitoria, Brazil, and promoted by the Brazilian Society of Biomedical Engineering SBEB, this book gives emphasis to research and developments carried out by Brazilian scientists, institutions and professionals. It offers an extensive overview on new trends and clinical implementation of technologies, and it is intended to foster communication and collaboration between medical scientists, engineers, and researchers inside and outside the country.

Feature Engineering and Computational Intelligence in ECG Monitoring Feb 23 2022 This book discusses feature engineering and computational intelligence solutions for ECG monitoring, with a particular focus on how these methods can be efficiently used to address the

emerging challenges of dynamic, continuous & long-term individual ECG monitoring and real-time feedback. By doing so, it provides a “snapshot” of the current research at the interface between physiological signal analysis and machine learning. It also helps clarify a number of dilemmas and encourages further investigations in this field, to explore rational applications of feature engineering and computational intelligence in ECG monitoring. The book is intended for researchers and graduate students in the field of biomedical engineering, ECG signal processing, and intelligent healthcare.

Biotechnology: Concepts, Methodologies, Tools, and Applications Jul 19 2021 Biotechnology can be defined as the manipulation of biological process, systems, and organisms in the production of various products. With applications in a number of fields such as biomedical, chemical, mechanical, and civil engineering, research on the development of biologically inspired materials is essential to further advancement. Biotechnology: Concepts, Methodologies, Tools, and Applications is a vital reference source for the latest research findings on the application of biotechnology in medicine, engineering, agriculture, food production, and other areas. It also examines the economic impacts of biotechnology use. Highlighting a range of topics such as pharmacogenomics, biomedical engineering, and bioinformatics, this multi-volume book is ideally designed for engineers, pharmacists, medical professionals, practitioners, academicians, and researchers interested in the applications of biotechnology.

Proceedings of the Fourth International Conference on Signal and Image Processing 2012 (ICSIP 2012) Aug 08 2020 The proceedings includes cutting-edge research articles from the Fourth International Conference on Signal and Image Processing (ICSIP), which is organised by Dr. N.G.P. Institute of Technology, Kalapatti, Coimbatore. The Conference provides academia and industry to discuss and present the latest technological advances and research results in the fields of theoretical, experimental, and application of signal, image and video processing. The book provides latest and most informative content from engineers and scientists in signal, image and video processing from around the world, which will benefit the future research community to work in a more cohesive and collaborative way.

Proceedings of the Multi-Conference 2011 Dec 12 2020 The International Conference on Signals, Systems and Automation (ICSSA 2011) aims to spread awareness in the research and academic community regarding cutting-edge technological advancements revolutionizing the world. The main emphasis of this conference is on dissemination of information, experience, and research results on the current topics of interest through in-depth discussions and participation of researchers from all over the world. The objective is to provide a platform to scientists, research scholars, and industrialists for interacting and exchanging ideas in a number of research areas. This will facilitate communication among researchers in different fields of Electronics and Communication Engineering. The International Conference on Intelligent System and Data Processing (ICISD 2011) is organized to address various issues that will foster the creation of intelligent solutions in the future. The primary goal of the conference is to bring together worldwide leading researchers, developers, practitioners, and educators interested in advancing the state of the art in computational intelligence and data processing for exchanging knowledge that encompasses a broad range of disciplines among various distinct communities. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working in India and abroad.

Intelligent Computing, Information and Control Systems Nov 10 2020 From past decades,

Computational intelligence embraces a number of nature-inspired computational techniques which mainly encompasses fuzzy sets, genetic algorithms, artificial neural networks and hybrid neuro-fuzzy systems to address the computational complexities such as uncertainties, vagueness and stochastic nature of various computational problems practically. At the same time, Intelligent Control systems are emerging as an innovative methodology which is inspired by various computational intelligence process to promote a control over the systems without the use of any mathematical models. To address the effective use of intelligent control in Computational intelligence systems, International Conference on Intelligent Computing, Information and Control Systems (ICICCS 2019) is initiated to encompass the various research works that helps to develop and advance the next-generation intelligent computing and control systems. This book integrates the computational intelligence and intelligent control systems to provide a powerful methodology for a wide range of data analytics issues in industries and societal applications. The recent research advances in computational intelligence and control systems are addressed, which provide very promising results in various industry, business and societal studies. This book also presents the new algorithms and methodologies for promoting advances in common intelligent computing and control methodologies including evolutionary computation, artificial life, virtual infrastructures, fuzzy logic, artificial immune systems, neural networks and various neuro-hybrid methodologies. This book will be pragmatic for researchers, academicians and students dealing with mathematically intransigent problems. It is intended for both academicians and researchers in the field of Intelligent Computing, Information and Control Systems, along with the distinctive readers in the fields of computational and artificial intelligence to gain more knowledge on Intelligent computing and control systems and their real-world applications.

World Congress on Medical Physics and Biomedical Engineering May 26-31, 2012, Beijing, China May 29 2022 The congress 's unique structure represents the two dimensions of technology and medicine: 13 themes on science and medical technologies intersect with five challenging main topics of medicine to create a maximum of synergy and integration of aspects on research, development and application. Each of the congress themes was chaired by two leading experts. The themes address specific topics of medicine and technology that provide multiple and excellent opportunities for exchanges.

Internet of Things for Healthcare Technologies Aug 20 2021 This book focuses on recent advances in the Internet of Things (IoT) in biomedical and healthcare technologies, presenting theoretical, methodological, well-established, and validated empirical work in these fields. Artificial intelligence and IoT are set to revolutionize all industries, but perhaps none so much as health care. Both biomedicine and machine learning applications are capable of analyzing data stored in national health databases in order to identify potential health problems, complications and effective protocols, and a range of wearable devices for biomedical and healthcare applications far beyond tracking individuals ' steps each day has emerged. These prosthetic technologies have made significant strides in recent decades with the advances in materials and development. As a result, more flexible, more mobile chip-enabled prosthetics or other robotic devices are on the horizon. For example, IoT-enabled wireless ECG sensors that reduce healthcare cost, and lead to better quality of life for cardiac patients. This book focuses on three current trends that are likely to have a significant impact on future healthcare: Advanced Medical Imaging and Signal Processing; Biomedical Sensors; and Biotechnological and Healthcare Advances. It also presents new methods of evaluating medical data, and diagnosing diseases in order to improve general quality of life.

Wearable Monitoring Systems Oct 29 2019 As diverse as tomorrow ' s society constituent groups may be, they will share the common requirements that their life should become safer and healthier, offering higher levels of effectiveness, communication and personal freedom. The key common part to all potential solutions fulfilling these requirements is wearable embedded systems, with longer periods of autonomy, offering wider functionality, more communication possibilities and increased computational power. As electronic and information systems on the human body, their role is to collect relevant physiological information, and to interface between humans and local and/or global information systems. Within this context, there is an increasing need for applications in diverse fields, from health to rescue to sport and even remote activities in space, to have real-time access to vital signs and other behavioral parameters for personalized healthcare, rescue operation planning, etc. This book ' s coverage will span all scientific and technological areas that define wearable monitoring systems, including sensors, signal processing, energy, system integration, communications, and user interfaces. Six case studies will be used to illustrate the principles and practices introduced.

Health Care Delivery and Clinical Science: Concepts, Methodologies, Tools, and Applications Jun 29 2022 The development of better processes to provide proper healthcare has enhanced contemporary society. By implementing effective collaborative strategies, this ensures proper quality and instruction for both the patient and medical practitioners. Health Care Delivery and Clinical Science: Concepts, Methodologies, Tools, and Applications is a comprehensive reference source for the latest scholarly material on emerging strategies and methods for delivering optimal healthcare and examines the latest techniques and methods of clinical science. Highlighting a range of pertinent topics such as medication management, health literacy, and patient engagement, this multi-volume book is ideally designed for professionals, practitioners, researchers, academics, and graduate students interested in healthcare delivery and clinical science.