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Bioremediation refers to the clean-up of pollution in soil, groundwater, surface water, and air using typically microbiological processes. It uses naturally occurring bacteria and fungi or plants to degrade, transform or detoxify hazardous substances to human health or the environment. For bioremediation to be effective, microorganisms must enzymatically attack the pollutants and convert them to harmless products. As bioremediation can be effective only where environmental conditions permit microbial growth and action, its application often involves the management of ecological factors to allow microbial growth and degradation to continue at a faster rate. Like other technologies, bioremediation has its limitations. Some contaminants, such as chlorinated organic or high aromatic hydrocarbons, are resistant to microbial attack. They are degraded either gradually or not at all, hence, it is not easy to envisage the rates of clean-up for bioremediation implementation. Bioremediation represents a field of great expansion due to the important development of new technologies. Among them, several decades on metagenomics expansion has led to the detection of autochthonous microbiota that plays a key role during transformation. Transcriptomic guides us to know the expression of key genes

and proteomics allow the characterization of proteins that conduct specific reactions. In this book we show specific technologies applied in bioremediation of main interest for research in the field, with special attention on fungi, which have been poorly studied microorganisms. Finally, new approaches in the field, such as CRISPR-CAS9, are also discussed. Lastly, it introduces management strategies, such as bioremediation application for managing affected environment and bioremediation approaches. Examples of successful bioremediation applications are illustrated in radionuclide entrapment and retardation, soil stabilization and remediation of polycyclic aromatic hydrocarbons, phenols, plastics or fluorinated compounds. Other emerging bioremediation methods include electro bioremediation, microbe-availed phytoremediation, genetic recombinant technologies in enhancing plants in accumulation of inorganic metals, and metalloids as well as degradation of organic pollutants, protein-metabolic engineering to increase bioremediation efficiency, including nanotechnology applications are also discussed.

The book include the generosity and mental make-up of Deshbandhu, his patriotism, his dutifulness towards his associates and co-workers, his nature, advocacy to solve country's multifarious problems and his close and cordial relationship with the reputed leaders of his time.

Attention Deficit Hyperactivity Disorder (ADHD) is a common neurological disorder that impacts focus, self-control, and other skills important in daily life. Caused by differences in brain anatomy and wiring, it is known to be one of the most common conditions in childhood. As ADHD plays a serious role in how children function in school and in their everyday life, having a deep understanding of this neurological condition is critical. This book explores recent advances in neuroimaging techniques, methods, applications and machine learning algorithms. ?Key Features Contributions from world-class researchers in neurological disorders imaging Introductory section on the fundamentals of various imaging techniques A comprehensive overview of imaging related dyslexia, epilepsy, and Parkinson's Artificial Intelligence principles incorporated throughout Emphasis on deep learning paradigms

Microbial Biotechnology in Food and Health Science, volume one in the Applied Biotechnology Reviews series, offers two unique sections within the theme of genomics and bioprocessing and the bioengineering of microorganisms in the role of food science and human health. This volume provides review articles as the basis supporting biotechnological research useful to a wide scope of research initiatives. Important relevant information on genomics, proteomics and metabolomics are included as well as the emerging interdisciplinary area of

synthetic biology which enables the metabolic engineering of microorganisms to produce pharmaceuticals. Applied Biotechnology Reviews is a series aimed at bringing all aspects of biotechnology as it is applied to food science – from agriculture through product processing into focus through topical volumes. Each volume will cover a relevant application approach in industrial biotechnology.

Covers the latest biotechnological research articles on applications of microbes for food and health science Presents research articles to emphasize research methods and techniques useful for research outcomes Analysis detoxification properties of microorganisms in foods Includes methods of bioengineering of microbes to improve human insulin synthesis/recombinant protein

Photodynamic therapy is a proven effective treatment of actinically damaged skin cells, nonmelanoma skin cancers, and acne and other pilosebaceous conditions. As an agent for general facial rejuvenation it has untapped potential. The current state of PDT therapy and future applications are discussed in detail in this exciting new volume. Throughout, the focus is on evidence-based clinical uses of PDT, including pretreatment regimens, avoidance and management of complications, and posttreatment suggestions.

Cancer was thought to originate from alterations in intercellular signaling that resulted in the transformation of cells, their uncontrolled proliferation and

metastasis. There is now an increasing body of evidence demonstrating that the surrounding matrix and cell-matrix interactions are also major players in this process. Cells adhere and receive signals from various extracellular matrices via transmembrane receptors, the best known of which are the heterodimeric glycoproteins, integrins.

Multiple sclerosis (MS) is a disease where the body's immune system attacks the brain and spinal cord, causing debilitating side effects that last a lifetime for those affected. There is currently no cure. Magnetic resonance imaging (MRI) has become an established tool in the diagnosis and monitoring of MS because of its ability to depict the pathological features of the disease in high detail. Over the past few decades, MRI-based visualization of demyelinated CNS lesions has become pivotal to the diagnosis and monitoring of MS. In recent years, newer MR imaging technologies, including higher-field-strength MR units, have been developed to analyse the overall MS damage and highlight potential mechanisms of recovery in patients at different stages of the disease. Written by experts in the field, this first volume covers all imaging techniques applied to the analysis of MS, including the physics of CT/MR neurological imaging, MR MS, and miscellaneous MR neurological applications.

A superior primer on software testing and quality assurance, from integration to execution and automation This important new work fills the pressing need for a user-friendly text that aims to provide software engineers, software quality professionals,

software developers, and students with the fundamental developments in testing theory and common testing practices. *Software Testing and Quality Assurance: Theory and Practice* equips readers with a solid understanding of: Practices that support the production of quality software Software testing techniques Life-cycle models for requirements, defects, test cases, and test results Process models for units, integration, system, and acceptance testing How to build test teams, including recruiting and retaining test engineers Quality Models, Capability Maturity Model, Testing Maturity Model, and Test Process Improvement Model Expertly balancing theory with practice, and complemented with an abundance of pedagogical tools, including test questions, examples, teaching suggestions, and chapter summaries, this book is a valuable, self-contained tool for professionals and an ideal introductory text for courses in software testing, quality assurance, and software engineering.

Beginning in 1983/84 published in 3 vols., with expansion to 6 vols. by 2007/2008: vol. 1--Organization descriptions and cross references; vol. 2--Geographic volume: international organization participation; vol. 3--Subject volume; vol. 4--Bibliography and resources; vol. 5--Statistics, visualizations and patterns; vol. 6--Who's who in international organizations. (From year to year some slight variations in naming of the volumes).

Biopharmaceutical medicines, the newest class of therapeutics, are quite heterogeneous and include a range of molecules such as proteins, peptides, vaccines

and nucleic acids, with use in virtually all therapeutic fields (e.g. cancer and infectious diseases, vaccination, metabolic dysfunctions) and diagnostics. This edited book gives a concise and up-to-date overview of the biological features justifying the use of different human mucosa as delivery routes for biopharmaceuticals, the technological strategies that have been followed so far regarding the optimization of mucosal potentialities as well as the challenges that arise with the advent of new biopharmaceutical drugs and alternative means of administration. Following a brief introduction, the first section addresses general aspects of the biology of mucosal tissues and their unique aspects toward beneficial or deleterious interaction with biopharmaceuticals and their delivery systems. The second part reviews the different delivery strategies that have recently been investigated for different mucosal sites. The third section describes the development and clinical applications of drug delivery systems and products enclosing biopharmaceuticals for mucosal delivery, with a focus on the most successful case studies of recent years. The last section briefly centers on relevant aspects of the regulatory, toxicological and market issues of mucosal delivery of biopharmaceuticals. Scientists and researchers in the fields of drug delivery, material science, biomedical science and bioengineering as well as professionals, regulators and policy makers in the pharmaceutical, biotechnology and healthcare industries will find in this book an important compendium of fundamental concepts and practical tools for their daily research and activities.

The Journal of Fluorescence's fifth Who's Who directory publishes the names, contact details, specialty keywords, and a brief description of scientists employing fluorescence methodology and instrumentation in their working lives. In addition, it provides company contact details with a brief list of fluorescence-related products.

This handbook (55 chapters) provides a comprehensive roadmap of basic research in nanomedicine as well as clinical applications. However, unlike other texts in nanomedicine, it not only highlights current advances in diagnostics and therapeutics but also explores related issues like nomenclature, historical developments, regulatory aspects, nanosim

Thirty-five years ago, when Stephen Kuffler and his colleagues at Harvard initiated a new era of research on the properties and functions of neuroglial cells, very few neuro scientists were impressed at the time with the hypothesis that neuroglial cells could have another, though more subtle, role to play in the nervous system than to provide static support to neurons. Today, very few neuroscientists are unaware of the fact that multiple interactions between neurons and glial cells have been described, and that they constitute the basis for understanding the function and the pathology of the nervous system. Glial cells outnumber neurons and make up about one-half of the bulk of the nervous system. They are divided into two major classes: first, the macroglia, which include astrocytes and oligodendrocytes in the central nervous system, and the Schwann cells in the peripheral nervous system; and second, the microglial cells. These different classes of glial cells have different functions and contribute in different ways in the development, function, and the pathology of the nervous system.

This is a real-time digital signal processing textbook using the latest embedded Blackfin processor Analog Devices, Inc (ADI). 20% of the text is dedicated to general real-time signal processing principles. The remaining text provides an overview of the Blackfin processor, its programming, applications, and hands-on exercises for users. With all the practical examples given to expedite the learning development of Blackfin processors, the textbook doubles as a ready-to-use user's guide. The book is based on a step-by-step approach in which readers are first introduced to the DSP systems and concepts. Although, basic DSP concepts are introduced to allow easy referencing, readers are recommended to complete a basic course on "Signals and Systems" before attempting to use this book. This is also the first textbook that illustrates graphical programming for embedded processor using the latest LabVIEW Embedded Module for the ADI Blackfin Processors. A solutions manual is available for adopters of the book from the Wiley editorial department.

Representing the first text to cover this exciting new area of research, this book will describe synthesis techniques of CNWs, their characterization and various expected applications using CNWs. Carbon-nanowalls (CNWs) can be described as two-dimensional graphite nanostructures with edges comprised of stacks of plane graphene sheets standing almost vertically on the substrate. These sheets form a wall structure with a high aspect ratio. The thickness of CNWs ranges from a few nm to a few tens of nm. The large surface area and sharp edges of CNWs may prove useful for a number of applications such as electrochemical devices, field electron emitters, storage materials for hydrogen gas, catalyst support. In particular, vertically standing CNWs with a high surface-to-volume ratio, serve as an ideal material for catalyst support for fuel cells and in gas storage materials.

This handbook provides a comprehensive insight into how imaging techniques should be applied to particular clinical problems and how the results can be used to determine the diagnosis and management of musculoskeletal conditions.

This book focuses on the most recent advances in the application of visualization and simulation methods to understand the flow behavior of complex fluids used in biomedical engineering and other related fields. It shows the physiological flow behavior in large arteries, microcirculation, respiratory systems and in biomedical microdevices.

This book explores comorbidity in patients with rheumatic diseases and details both care and treatment options in standard clinical practice. Patients with rheumatic diseases are clinically complex, and the interplay of their disease activity with associated conditions may lead to increased morbidity and mortality. Recently there have been major advances in the management of rheumatic diseases, however, without addressing the potential comorbid conditions, including cardiovascular disease; pulmonary disease; and depression; outcomes remain poor. ??? With its 19 chapters, covering the management of major rheumatic diseases (e.g. rheumatoid arthritis, systemic lupus erythematosus , and osteoarthritis), potential comorbidities and treatment recommendations, as well as possible interactions between conditions; this book addresses the gap between textbook medicine and day to day patients' care. Authors also discuss the new hot issue of the comorbidity index, comparing the standard tools to the recently developed indices and how they can assist the rheumatologists in determining disease burden, prognosis, and comorbidity probability. This book is an ideal clinical guide and reference that enables rheumatologists, internal medicine physicians, and residents to address the full clinical expression of these rheumatic diseases with views towards

prevention or early management of comorbid conditions.

This book reviews the latest advances in multiple fields of plant biotechnology and the opportunities that plant genetics, genomics and molecular biology have offered for agriculture improvement. Advanced technologies can dramatically enhance our capacity in understanding the molecular basis of traits and utilizing the available resources for accelerated development of high yielding, nutritious, input-use efficient and climate-smart crop varieties. In this book, readers will discover the significant advances in plant genetics, structural and functional genomics, trait and gene discovery, transcriptomics, proteomics, metabolomics, epigenomics, nanotechnology and analytical & decision support tools in breeding. This book appeals to researchers, academics and other stakeholders of global agriculture.

World Cancer Report: Cancer Research for Cancer Prevention is a multidisciplinary publication, with leading international scientists as authors and reviewers. More than 60 different chapters describe multiple aspects of cancer prevention and the research that underpins prevention, focusing on research activity during the past 5 years. Starting with the latest trends in cancer incidence and mortality worldwide, this publication provides wide-ranging insights into cancer prevention based on the known causes of cancer, factors that determine how cancer develops, and the behaviour of different tumour types, and presents a broad scope of interventions to reduce the cancer burden from a global perspective, including addressing inequalities that affect cancer

prevention.

This volume includes selected contributions presented during the 2nd edition of the international conference on WaterEnergyNEXUS which was held in Salerno, Italy in November 2018. This conference was organized by the Sanitary Environmental Engineering Division (SEED) of the University of Salerno (Italy) in cooperation with Advanced Institute of Water Industry at Kyungpook National University (Korea) and with The Energy and Resources Institute, TERI (India). The initiative received the patronage of UNESCO – World Water Association Programme (WWAP) and of the International Water Association (IWA) and was organized with the support of Springer (MENA Publishing Program), Arab Water Council (AWC), Korean Society of Environmental Engineering (KSEE) and Italian Society of Sanitary Environmental Engineering Professors (GITISA). With the support of international experts invited as plenary and keynote speakers, the conference aimed to give a platform for Euro-Mediterranean countries to share and discuss key topics on such water-energy issues through the presentation of nature-based solutions, advanced technologies and best practices for a more sustainable environment. This volume gives a general and brief overview on current research focusing on emerging Water-Energy-Nexus issues and challenges and its potential applications to a variety of environmental problems that are impacting the Euro-Mediterranean zone and surrounding regions. A selection of novel and alternative solutions applied worldwide are included. The volume contains over about one hundred

carefully refereed contributions from 44 countries worldwide selected for the conference. Topics covered include (1) Nexus framework and governance, (2) Environmental solutions for the sustainable development of the water sector, (3) future clean energy technologies and systems under water constraints, (4) environmental engineering and management, (5) Implementation and best practices Intended for researchers in environmental engineering, environmental science, chemistry, and civil engineering. This volume is also an invaluable guide for industry professionals working in both water and energy sectors.

This book constitutes revised selected papers from the International Conference on Advanced Computing, Networking and Security, ADCONS 2011, held in Surathkal, India, in December 2011. The 73 papers included in this book were carefully reviewed and selected from 289 submissions. The papers are organized in topical sections on distributed computing, image processing, pattern recognition, applied algorithms, wireless networking, sensor networks, network infrastructure, cryptography, Web security, and application security.

ICIAR 2004, the International Conference on Image Analysis and Recognition, was the first ICIAR conference, and was held in Porto, Portugal. ICIAR will be organized annually, and will alternate between Europe and North America. ICIAR 2005 will take place in Toronto, Ontario, Canada. The idea of offering these conferences came as a result of discussion between researchers in Portugal and Canada to encourage

collaboration and exchange, mainly between these two countries, but also with the open participation of other countries, addressing recent advances in theory, methodology and applications. The response to the call for papers for ICIAR 2004 was very positive. From 316 full papers submitted, 210 were accepted (97 oral presentations, and 113 - sters). The review process was carried out by the Program Committee members and other reviewers; all are experts in various image analysis and recognition areas. Each paper was reviewed by at least two reviewing parties. The high q- lity of the papers in these proceedings is attributed ?rst to the authors, and second to the quality of the reviews provided by the experts. We would like to thank the authors for responding to our call, and we wholeheartedly thank the reviewers for their excellent work in such a short amount of time. We are espe- ally indebted to the Program Committee for their e?orts that allowed us to set up this publication. We were very pleased to be able to include in the conference, Prof. Murat KuntfromtheSwissFederalInstituteofTechnology,andProf. Mario ? Figueiredo, oftheInstitutoSuperiorT ? ecnico,inPortugal.

This book guides architects, landscape designers, urban planners, agronomists and society on the implementation of sustainable rooftop farming projects. The interdisciplinary team of authors involved stresses the different approaches and the multi-faceted forms that rooftop farming may assume in any context. While rooftop farming experiences are sprouting all over the world the need for scientific evidence on

the most suitable growing solutions, policies and potential benefits emerges. This volume brings together existing experiences as well as suggestions for planning future sustainable cities.

Nanotechnology has the power to radically change the way cancer is diagnosed, imaged, and treated. The holistic approach to cancer involves noninvasive procedures that emphasize restoring the health of human energy fields. Presenting a wealth of information and research about the most potent cancer healing therapies, this forward-thinking book explores how nanomedicine, holistic medicine, and other cancer therapies play important roles in treatment of this disease. Topics include nanobiotechnology for antibacterial therapy and diagnosis, mitochondrial dysfunction and cancer, antioxidants and combinatorial therapies, and optical and mechanical investigations of nanostructures for biomolecular detection.

Pediatric Skin of Color is the first textbook devoted to the issues of pediatric skin of color. In 2052, more than fifty percent of the United States will be of color, and currently seventy percent of the world's population is termed of color. Therefore, this book fills the need for an instructional and educational reference work regarding these populations. Pediatric Skin of Color? discusses the biology and clinical data regarding normal skin, skin conditions exclusive to individuals of

color, systemic diseases of individuals of color that have a strong component of skin involvement, and the appearance and demographics of common skin diseases, comparing Caucasian and all skin of color populations. Written for dermatologists and pediatric dermatologists, this text includes data on African American, Asian (Southeast and East), Hispanic/Latino, and Middle Eastern patients, as well as Indigenous populations (i.e. Native Americans, Aborigines).

Publisher Description

Ninth in a series of annual reports comparing business regulations in 183 economies, *Doing Business 2012* measures regulations affecting 11 areas of everyday business activity: starting a business dealing with construction permits employing workers registering property getting credit protecting investors paying taxes trading across borders enforcing contracts closing a business getting electricity The report updates all indicators as of June 1, 2011, ranks countries on their overall "ease of doing business", and analyzes reforms to business regulation identifying which countries are strengthening their business environment the most. *Doing Business 2012* includes a new set of indicators on the time, steps, and cost for a private business to get an electricity connection. The data on connection services can inform utilities, regulators and governments seeking to strengthen the performance of the electricity sector. Drawing on a now

longer time series, this year's report introduces a measure to illustrate how the regulatory environment for business has changed in each economy since Doing Business 2006 was published in 2005. A new "distance to frontier" measure complements the aggregate ranking on the ease of doing business, which benchmarks each economy's current performance on the indicators against that of all other economies in the sample for a given year. A fundamental premise of Doing Business is that economic activity requires good rules that are transparent and accessible to all. Such regulations should be efficient, striking a balance between safeguarding some important aspects of the business environment and avoiding distortions that impose unreasonable costs on businesses. Where business regulation is burdensome and competition limited, success depends more on whom you know than on what you can do. But where regulations are relatively easy to comply with and accessible to all who need to use them, anyone with talent and a good idea should be able to start and grow a business in the formal sector. The Doing Business report, which was started in 2003, has become one of the key ways in which the bank and other observers gauge business climate within developing countries... -- The Financial Times [Doing Business started] as a way to encourage countries to reduce obstacles to entrepreneurship. Developing countries compete to land a spot on the top 10 list

of most-improving countries because it is seen as a way to get attention and investment. -- The Wall Street Journal [Doing Business] has succeeded in putting the issue of business red tape on the international political agenda. -- The Economist

Abiotic stresses are the major cause that limits productivity of crop plants worldwide. Plants have developed intricate machinery to respond and adapt over these adverse environmental conditions both at physiological and molecular levels. Due to increasing problems of abiotic stresses, plant biotechnologists and breeders need to employ new approaches to improve abiotic stress tolerance in crop plants. Although current research has divulged several key genes, gene regulatory networks and quantitative trait loci that mediate plant responses to various abiotic stresses, the comprehensive understanding of this complex trait is still not available. This e-book is focused on molecular genetics and genomics approaches to understand the plant response/adaptation to various abiotic stresses. It includes different types of articles (original research, method, opinion and review) that provide current insights into different aspects of plant responses and adaptation to abiotic stresses.

Research on multi-agent systems has provided a promising technology for implementing cognitive intelligent non-playing characters. However, the

technologies used in game engines and multi-agent platforms are not readily compatible due to some inherent differences in concerns. Where game engines focus on real-time aspects and thus propagate efficiency and central control, multi-agent platforms assume autonomy of the agents. Increased autonomy and intelligence may offer benefits for a more compelling gameplay and may even be necessary for serious games. However, problems occur when current game design techniques are used to incorporate state-of-the-art multi-agent system technology. A very similar argument can be given for agent-based (social) simulation. This volume contains the papers presented at AGS 2009, the First International Workshop on Agents for Games and Simulations, held in Budapest on May 11, 2009. The focus of the workshop was on the particular challenges facing those using agent technology for games and simulations, with topics covering the technical, conceptual and design aspects of the field.

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