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Research into the methods and techniques used in simulating crowds has developed extensively within the last few years, particularly in the areas of video games and film. Despite recent impressive results when simulating and rendering thousands of individuals, many challenges still exist in this area. The comparison of simulation with reality, the realistic appearance of virtual humans and their behavior, group structure and their motion, and collision avoidance are just some examples of these challenges. For most of the applications of crowds, it is now a requirement to have real-time simulations – which is an additional challenge, particularly when crowds are very large. Crowd Simulation analyses these challenges in depth and suggests many possible solutions. Daniel Thalmann and Soraia Musse share their experiences and expertise in the application of: · Population modeling · Virtual human animation · Behavioral models for crowds · The connection between virtual and real crowds · Path planning and navigation · Visual attention models · Geometric and populated semantic environments · Crowd rendering The second edition presents techniques and methods developed since the authors first covered the simulation of crowds in 2007. Crowd Simulation includes in-depth discussions on the techniques of path planning, including a new hybrid approach between navigation graphs and potential-based methods. The importance of gaze attention – individuals appearing conscious of their environment and of others – is introduced, and a free-of-collision method for crowds is also discussed.

The seven-volume set comprising LNCS volumes 7572-7578 constitutes the refereed proceedings of the 12th European Conference on Computer Vision, ECCV 2012, held in Florence, Italy, in October 2012. The 408 revised papers presented were carefully reviewed and selected from 1437 submissions. The papers are organized in topical sections on geometry, 2D and 3D shapes, 3D reconstruction, visual recognition and classification, visual features and image matching, visual monitoring: action and activities, models, optimisation, learning, visual tracking and image registration, photometry: lighting and colour, and image segmentation.

This book emphasizes past and current research efforts about principles of natural control of major parasites affecting humans, animals, and crops. Each chapter is a complete and integrated subject that presents a problem and confers on the safe alternatives to chemicals. This book discusses and updates information about three major topics of natural remedies. The first topic is represented in a chapter outlining important information on biological control of parasites, the second topic is represented in three chapters dealing with botanicals as promising antiparasitic agents, and the last four chapters deal with miscellaneous control strategies against parasites. This easily readable book is designed precisely for students as well as professors linked with the field of parasitic control. We enhanced words with breathing areas in the form of graphical abstracts, figures, photographs, and tables.

This volume presents the selected papers of the First International Conference on Fundamental Research in Electrical Engineering, held at Khwarazmi University, Tehran, Iran in July, 2017. The selected papers cover the whole spectrum of the main four fields of Electrical Engineering (Electronic, Telecommunications, Control, and Power Engineering).

A laboratory study that investigates how algorithms come into existence. Algorithms--often associated with the terms big data, machine learning, or artificial intelligence--underlie the technologies we use every day, and disputes over the consequences, actual or potential, of new algorithms arise regularly. In this book, Florian Jaton offers a new way to study computerized methods, providing an account of where algorithms come from and how they are constituted, investigating the practical activities by which algorithms are progressively assembled rather than what they may suggest or require once they are assembled.

During the last three decades there have been enormous advances in our understanding of the neural mechanisms of selective attention at the network as well as the cellular level. The Oxford Handbook of Attention brings together the different research areas that constitute contemporary attention research into one comprehensive and authoritative volume. In 40 chapters, it covers the most important aspects of attention research from the areas of cognitive psychology, neuropsychology, human and animal neuroscience, and computational modelling. The book is divided into six main sections. Following an introduction from Michael Posner, The Oxford Handbook of Attention begins by looking at theoretical models of attention. The next two sections are dedicated to spatial attention and non-spatial attention respectively. Within section 4, the authors consider the interactions between attention and other psychological domains. The last two sections focus on attention related disorders and on computational models of attention. A final epilogue chapter written by Nobre and Kastner summarizes the questions, methods, findings, and emerging principles of contemporary attention research. For both scholars and students, The Oxford Handbook of Attention provides a concise and state-of-the-art review of the current literature in this field.

Humans are part of an ecosystem, and understanding our relationship with the environment and with other organisms is a prerequisite to living together sustainably. Zoonotic diseases, which are spread between animals and humans, are an important issue as they reflect our relationship with other animals in a common environment. Zoonoses are still presented with high occurrence rates, especially in rural communities, with direct and indirect consequences for people. In several cases, zoonosis could cause severe clinical manifestations and is difficult to control and treat. Moreover, the persistent use of drugs for infection control enhances the potential of drug resistance and impacts on ecosystem balance and food production. This book demonstrates the importance of understanding zoonosis in terms of how it allows ecosystems to transform, adapt, and evolve. Ecohealth/One Health approaches recognize the interconnections among people, other organisms, and their shared developing environment. Moreover, these holistic approaches encourage stakeholders of various disciplines to collaborate in order to solve problems related to zoonosis. The reality of climate change necessitates considering new variables in studying diseases, particularly to predict how these changes in the ecosystems can affect human health and how to recognize the boundaries between medicine, veterinary care, and environmental and social changes towards healthy and sustainable development.

Handbook of Equine Parasite Control, Second Edition offers a thorough revision to this practical manual of parasitology in the horse. Incorporating new information and diagnostic knowledge throughout, it adds five new sections, new information on computer simulation methods, and new maps to show the spread of anthelmintic resistance. The book also features 30 new high-quality figures and expanded information on parasite occurrence and epidemiology, new diagnostics, treatment strategies, clinical significance of infections, anthelmintic resistance, and environmental persistence. This second edition of Handbook of Equine Parasite Control brings together all the details needed to appropriately manage parasites in equine patients and support discussions between horse owners and their veterinarians. It offers comprehensive coverage of internal parasites and factors affecting their transmission; principles of equine parasite control; and diagnosis and assessment of parasitologic information.

Additionally, the book provides numerous new case histories, covering egg count results from yearlings, peritonitis and parasites, confinement and deworming, quarantine advice, abdominal distress in a foal, and more. A clear and concise user-friendly guide to equine parasite control for veterinary practitioners and students Fully updated with new knowledge and diagnostic methods throughout Features brand new case studies Presents 30 new high-quality figures, including new life-cycle charts Provides maps to show the spread of anthelmintic resistance Handbook of Equine Parasite Control is an essential guide for equine practitioners, veterinary students, and veterinary technicians dealing with parasites in the horse.

This volume is not an attempt to give a comprehensive treatment of the many facets of intelligence. Rather, the intention is to present multiple approaches to interesting and novel ways of looking at old problems. The focus is on the visual and some of the conceptual intelligences. Vision is man's primary cognitive contact with the world around him, and we are vividly reminded of this by Roman Jakobson's autobiographical note, "The Evasive Initial" with which this volume begins. That we see the world as well as we do is something of a miracle. Looking out through our eyes, our brains give us reliable knowledge about the world around us in all it beauty of form, color and movement. The chapters in the first section look at how this may come about from various perspectives. How from the intensity array which the world casts on the eye's retina does the brain achieve recognition? What may be some of the processes involved in seeing? We see shapes, textures and colors, and subsequently, at the more cognitive levels, recognize them as objects which we can manipulate: we inspect them to discover what to use them for. The objects are tools or food; they are things, beautiful, lovable or frightening. They are things to remember and to talk about to our friends, or to ask someone for. We can ask for many or just a few. They are important to us or trivial.

Contents: (1) Background of the Iran Sanctions Act (ISA): Key Provisions: ¿Triggers¿ and Available Sanctions; Waiver and Termination Authority; Iran Freedom Support Act Amendments; Effectiveness and Ongoing Challenges: Energy Routes and Refinery Investment: Refinery Construction; Significant Purchase Agreements; Efforts in the 110th and 111th Congress to Expand ISA Application; Other Energy-Related Sanctions Ideas; (2) Relationships to Other U.S. Sanctions: Ban on U.S. Trade and Investment With Iran; Treasury Department ¿Targeted Financial Measures¿; Terrorism-Related Sanctions; Executive Order 13224; Proliferation-Related Sanctions; Efforts to Promote Divestment; Blocked Iranian Property and Assets. Tables.

Contamination of foods and agricultural commodities by various types of toxigenic fungi is a concerning issue for human and animal health. Moulds naturally present in foods can produce mycotoxins and contaminate foodstuffs under favourable conditions of temperature, relative humidity, pH, and nutrient availability. Mycotoxins are, in general, stable molecules that are difficult to remove from foods once they have been produced. Therefore, the prevention of mycotoxin contamination is one of the main goals of the agriculture and food industries. Chemical control or decontamination techniques may be quite efficient; however, the more sustainable and restricted use of fungicides, the lack of efficiency in some foods, and the consumer demand for chemical-residue-free foods require new approaches to control this hazard. Therefore, food safety demands continued research efforts for exploring new strategies to reduce mycotoxin contamination. This Special Issue contains original contributions and reviews that advance the knowledge about the most current promising approaches to minimize mycotoxin contamination, including biological control agents, phytochemical antifungal compounds, enzyme detoxification, and the use of novel technologies.

This comprehensive book focuses squarely on academic portfolios, which may prove to be the most innovative and promising faculty evaluation and development technique in years. The authors identify key issues, red flag warnings, and benchmarks for success, describing the what, why, and how of developing academic portfolios. The book includes an extensively tested step-by-step approach to creating portfolios and lists 21 possible portfolio items covering teaching, research/scholarship, and service from which faculty can choose the ones most relevant to them. The thrust of this book is unique: It provides time-tested strategies and proven advice for getting started with portfolios. It includes a research-based rubric grounded in input from 200 faculty members and department chairs from across disciplines and institutions. It examines specific guiding questions to consider when preparing every subsection of the portfolio. It presents 18 portfolio models from 16 different academic disciplines. Designed for faculty members, department chairs, deans, and members of promotion and tenure committees, all of whom are essential partners in developing successful academic portfolio programs, the book will also be useful to graduate students, especially those planning careers as faculty members.

This volume covers the state-of-the-art topics that investigate two significant neurological disorders, autism apectrum disorder (ASD) and Alzheimer's disease (AD), from the theoretical perspective and also focuses on the practical aspects. The materials are presented in a way that can be beneficial to both advanced and layman readers.

"This book presents advice and guidance based on previous court cases and the experience of administrators and campus hearing officers who have dealt with difficult First Ammendment issues and lived to tell about it" -- P. 2.

Understanding parasite biology and impact is essential when giving advice on parasite control in farm animals. In the first review devoted to parasites of domestic cattle and sheep alone, this book provides in-depth, focused advice which can be tailored to individual farms. It considers the impact of parasites, both as individual species and as co-infections, as well as epidemiological information, monitoring, and diagnostic procedures. Supported throughout by diagrams and photos to aid diagnosis, it also reviews the basis for control measures such as the responsible use of parasiticides, adaptive animal husbandry and other management practices.

This monograph presents a complete computational system for visual attention and object detection. VOCUS (Visual Object detection with a Computational attention System) represents a major step forward on integrating data-driven and model-driven information into a single framework. Additionally, the volume contains an extensive review of the literature on visual attention, detailed evaluations of VOCUS in different settings, and applications of the system.

The book provides a reference to biological control of arthropod pests in agriculture and of public health importance in Iran. A quick glance over the literature shows a long history of biocontrol attempts in the country. Some historically important events highlighting the interest of Iranian academic, research and extension fields to the natural enemies and their applied aspects are provided. Iran, with an exception of the former USSR, was a pioneer in both basic and applied biocontrol in West Asia. The book consists of four parts: three parts for predators, parasitoids and pathogens, and last part for other approaches and analyses of the current state of biological control in Iran. The book provides the most up-to-date information on pest control and related topics of entomology in Iran. The chapters are written by scholars from major Universities and research centers in Iran.

Meaning-Centered Psychotherapy (MCP) for advanced cancer patients is a highly effective intervention for advanced cancer patients, developed and tested in randomized controlled trials by Breitbart and colleagues at Memorial Sloan-Kettering Cancer Center. This treatment manual for group therapy provides clinicians in the oncology and palliative care settings a highly effective, brief, structured intervention shown to be effective in helping patients sustain meaning, hope and quality of life.

This book constitutes the refereed proceedings of the Second International Workshop on Biologically Motivated Computer Vision, BMCV 2002, held in Tübingen, Germany, in November 2002. The 22 revised full papers and 37 revised short papers presented together with 6 invited papers were carefully reviewed and selected from 97 submissions. The papers are organized in topical sections on neurons and features, motion, mid-level vision, recognition - from scenes to neurons, attention, robotics, and cognitive vision.

Multimodal Behavioral Analysis in the Wild: Advances and Challenges presents the state-of- the-art in behavioral signal processing using different data modalities, with a special focus on identifying the strengths and limitations of current technologies. The book focuses on audio and video modalities, while also emphasizing emerging modalities, such as accelerometer or proximity data. It covers tasks at different levels of complexity, from low level (speaker detection, sensorimotor links, source separation), through middle level (conversational group detection, addresser and addressee identification), and high level (personality and emotion recognition), providing insights on how to exploit inter-level and intra-level links. This is a valuable resource on the state-of-the- art and future research challenges of multi-modal behavioral analysis in the wild. It is suitable for researchers and graduate students in the fields of computer vision, audio processing, pattern recognition, machine learning and social signal processing. Gives a comprehensive collection of information on the state-of-the-art, limitations, and challenges associated with extracting behavioral cues from real-world scenarios Presents numerous applications on how different behavioral cues have been successfully extracted from different data sources Provides a wide variety of methodologies used to extract behavioral cues from multi-modal data

This book discusses cancers and the resurgence of public interest in plant-based and herbal drugs. It also describes ways of obtaining anti-cancer drugs from plants and improving their production using biotechnological techniques. It presents methods such as cell culture, shoot and root culture, hairy root culture, purification of plant raw materials, genetic engineering, optimization of culture conditions as well as metabolic engineering with examples of successes like taxol, shikonin, ingenol mebutate and podophylotoxin. In addition, it describes the applications and limitations of large-scale production of anti-cancer compounds using biotechnological means. Lastly, it discusses future economical and eco-friendly strategies for obtaining anti-cancer compounds using biotechnology.

During the last three decades, there have been enormous advances in our understanding of the neural mechanisms of selective attention at the network as well as the cellular level. The Oxford Handbook of Attention brings together the different research areas that constitute contemporary attention research into one comprehensive and authoritative volume. In 40 chapters, it covers the most important aspects of attention research from the areas of cognitive psychology, neuropsychology, human and animal neuroscience, computational modelling, and philosophy. The book is divided into 4 main sections. Following an introduction from Michael Posner, the books starts by looking at theoretical models of attention. The next two sections are dedicated to spatial attention and non-spatial attention respectively. Within section 4, the authors consider the interactions between attention and other psychological domains. The last two sections focus on attention-related disorders, and finally, on computational models of attention. Aimed at both scholars and students, the Oxford Handbook of Attention provides a concise and state-of-the-art review of the current literature in this field.

Wheeler Thackstons lively new translation of The Jahangirnama, co-published with the Freer/Arthur M. Sackler Gallery of the Smithsonian Institution, presents an engaging portrait of an intriguing emperor and his flourishing empire. The Emperor Jahangir is probably best know in the West as being the father of Shahjahan, who built the Taj Mahal. His reign was one of great prosperity, and his passion for art and nature encouraged a flowering that some say rivaled European art during the rule of the Medicis. In penning his memoirs, Jahangir followed a tradition begun by his great-grandfather, the Emperor Babur. Jahangirs memoirs, however, provide not only the history of his reign, but also his reflections on art, politics, and private details about his familyincluding the suicide of one of his wivesand selections of poetry written by members of his harem. One of Jahangirs stories describes his astonishment at witnessing the fall of a meteorite, an event that so amazed him that he ordered that a dagger be made from its metal. This book includes a selection of exquisite full-color paintings, drawings, and objects that specifically illustrate the passages they accompany--including a photograph of the Emperors treasured dagger. A lover of jewels, nature, hunting, drinking, and opiates, Jahangir carried the Mughal empire to artistic and political heights. Refreshingly candid and frank, this splendidly illustrated edition of Jahangirs memoirs is a thoroughly absorbing profile of an emperor and the zenith of his empire.

Integrating Computational and Neural Findings in Visual Object PerceptionFrontiers Media SA

This book brings together the best contributions of the Applied Statistics and Policy Analysis Conference 2019. Written by

leading international experts in the field of statistics, data science and policy evaluation. This book explores the theme of effective policy methods through the use of big data, accurate estimates and modern computing tools and statistical modelling.

This book constitutes the thoroughly refereed post-conference proceedings of the 7th International Joint Conference on Biomedical Engineering Systems and Technologies, BIOSTEC 2014, held in Angers, France, in March 2014. The 25 revised full papers presented were carefully reviewed and selected from a total of 362 submissions. The papers cover a wide range of topics and are organized in topical sections on biomedical electronics and devices; bioimaging; bioinformatics models, methods and algorithms; bio-inspired systems and signal processing; health informatics.

"This book provides interdisciplinary research that evaluates the performance of machine visual models and systems in comparison to biological systems, blending the ideas of current scientific knowledge and biological vision"--

The book is organized around 4 sections. The first deals with the creativity and its neural basis (responsible editor Emmanuelle Volle). The second section concerns the neurophysiology of aesthetics (responsible editor Zoï Kapoula). It covers a large spectrum of different experimental approaches going from architecture, to process of architectural creation and issues of architectural impact on the gesture of the observer. Neurophysiological aspects such as space navigation, gesture, body posture control are involved in the experiments described as well as questions about terminology and valid methodology. The next chapter contains studies on music, mathematics and brain (responsible editor Moreno Andreatta). The final section deals with evolutionary aesthetics (responsible editor Julien Renoult). Chapter "Composing Music from Neuronal Activity: The Spikiss Project" is available open access under a Creative Commons Attribution-NonCommercial 4.0 International License via link.springer.com.

The fifth edition of a work that defines the field of cognitive neuroscience, with entirely new material that reflects recent advances in the field. Each edition of this classic reference has proved to be a benchmark in the developing field of cognitive neuroscience. The fifth edition of The Cognitive Neurosciences continues to chart new directions in the study of the biological underpinnings of complex cognition—the relationship between the structural and physiological mechanisms of the nervous system and the psychological reality of the mind. It offers entirely new material, reflecting recent advances in the field. Many of the developments in cognitive neuroscience have been shaped by the introduction of novel tools and methodologies, and a new section is devoted to methods that promise to guide the field into the future—from sophisticated models of causality in brain function to the application of network theory to massive data sets. Another new section treats neuroscience and society, considering some of the moral and political quandaries posed by current neuroscientific methods. Other sections describe, among other things, new research that draws on developmental imaging to study the changing structure and function of the brain over the lifespan; progress in establishing increasingly precise models of memory; research that confirms the study of emotion and social cognition as a core area in cognitive neuroscience; and new findings that cast doubt on the so-called neural correlates of consciousness.

The two-volume set LNCS 11751 and 11752 constitutes the refereed proceedings of the 20th International Conference on Image Analysis and Processing, ICIAP 2019, held in Trento, Italy, in September 2019. The 117 papers presented were carefully reviewed and selected from 207 submissions. The papers cover both classic and the most recent trends in image processing, computer vision, and pattern recognition, addressing both theoretical and applicative aspects. They are organized in the following topical sections: Video Analysis and Understanding; Pattern Recognition and Machine Learning; Deep Learning; Multiview Geometry and 3D Computer Vision; Image Analysis, Detection and Recognition; Multimedia; Biomedical and Assistive Technology; Digital Forensics; Image processing for Cultural Heritage.

The first systematic global study of how Christians respond to persecution, presenting new research by leading scholars of global Christianity.

This book is broadly divided into five sections and 17 chapters, highlighting recent advances in aflatoxin research from epidemiology to molecular genomics and control measures, biocontrol approaches, modern analytical techniques, economic concerns and underlying mechanisms of contamination processes. This book will update readers on several cutting-edge aspects of aflatoxins research with useful up-to-date information for mycologists, toxicologists, microbiologists, agriculture scientists, plant pathologists and pharmacologists, who may be interest to understanding of the impact, significance and recent advances within the field of of aflatoxins with a focus on control strategy.

This work brings together a wealth of data regarding the reference values and factors of variation in biochemical parameters used by camel veterinarians and scientists to determine these animals' nutritional and clinical status. It also explores several technical aspects involved in determining these parameters, sampling procedures, and essential elements in the interpretation of the results. Though many texts are available on small and large ruminants, much less is known about species confined to the marginal zones of tropical and Mediterranean countries, such as camels. This book addresses precisely this research gap, on the one hand by presenting an extensive review of the literature, and on the other by synthesizing the outcomes of the authors' numerous previous works. In veterinary medicine, blood tests to help diagnose diseases in cattle were first proposed nearly a century ago, but were mainly developed in the 1960s, initially at specialized research or veterinary services laboratories, and eventually, with the advent of new equipment and the miniaturization of the analyzers, finding their way into veterinarians' cabinets. Beyond their diagnostic value, veterinary surgeons and zootechnicians also speculated on the potential use of blood tests to evaluate animals' nutritional status. Thus, a whole range of analyses are now proposed to the stakeholders responsible for animal health. Such analyses could help to define a metabolic profile, which would offer a valuable decision-making tool for experts and researchers alike.

This volume presents a series of carefully selected papers on the theme of Intelligent Interactive Multimedia Systems and Services (IIMSS-18), but also including contributions on Innovation in Medicine and Healthcare (InMed-18) and Smart Transportation Systems (STS-18). The papers were presented at the Smart Digital Futures 2018 multi-theme conference, which grouped the AMSTA, IDT, InMed, SEEL, STS and IIMSS conferences in one venue in Gold Coast, Australia in June 2018. IIMSS-18 included sessions on 'Cognitive Systems and Big Data Analytics', 'Data Processing and Secure Systems', 'Innovative Information Services for Advanced Knowledge Activity', 'Autonomous System' and ' Image Processing'. InMed-18 papers cover major areas of 'Digital Architecture for Internet of Things, Big data,

Cloud and Mobile IT in Healthcare' and 'Advanced ICT for Medical and Healthcare'. STS-18 papers provide a comprehensive overview of various aspects of current research into intelligent transportation technology.

The articles in this Research Topic provide a state-of-the-art overview of the current progress in integrating computational and empirical research on visual object recognition. Developments in this exciting multidisciplinary field have recently gained momentum: High performance computing enabled breakthroughs in computer vision and computational neuroscience. In parallel, innovative machine learning applications have recently become available for datamining the large-scale, high resolution brain data acquired with (ultra-high field) fMRI and dense multi-unit recordings. Finally, new techniques to integrate such rich simulated and empirical datasets for direct model testing could aid the development of a comprehensive brain model. We hope that this Research Topic contributes to these encouraging advances and inspires future research avenues in computational and empirical neuroscience.

Traditionally, scientific fields have defined boundaries, and scientists work on research problems within those boundaries. However, from time to time those boundaries get shifted or blurred to evolve new fields. For instance, the original goal of computer vision was to understand a single image of a scene, by identifying objects, their structure, and spatial arrangements. This has been referred to as image understanding. Recently, computer vision has gradually been making the transition away from understanding single images to analyz ing image sequences, or video understanding. Video understanding deals with understanding of video sequences, e. g. , recognition of gestures, activities, fa cial expressions, etc. The main shift in the classic paradigm has been from the recognition of static objects in the scene to motion-based recognition of actions and events. Video understanding has overlapping research problems with other fields, therefore blurring the fixed boundaries. Computer graphics, image processing, and video databases have obvious overlap with computer vision. The main goal of computer graphics is to gener ate and animate realistic looking images, and videos. Researchers in computer graphics are increasingly employing techniques from computer vision to gener ate the synthetic imagery. A good example of this is image-based rendering and modeling techniques, in which geometry, appearance, and lighting is de rived from real images using computer vision techniques. Here the shift is from synthesis to analysis followed by synthesis.

Motion-based recognition deals with the recognition of an object and/or its motion, based on motion in a series of images. In this approach, a sequence containing a large number of frames is used to extract motion information. The advantage is that a longer sequence leads to recognition of higher level motions, like walking or running, which consist of a complex and coordinated series of events. Unlike much previous research in motion, this approach does not require explicit reconstruction of shape from the images prior to recognition. This book provides the state-of-the-art in this rapidly developing discipline. It consists of a collection of invited chapters by leading researchers in the world covering various aspects of motion-based recognition including lipreading, gesture recognition, facial expression recognition, gait analysis, cyclic motion detection, and activity recognition. Audience: This volume will be of interest to researchers and post- graduate students whose work involves computer vision, robotics and image processing.

This book provides the detail information about nanoparticles, their types, characterization techniques such as TEM, FESEM, AFM, XRD etc. nanogenotoxicity, metal and metal oxide nanoparticle's toxicity, physical and chemical characterization of nanomaterials, entry routes, cell-nano interaction studies, possible impacts to the human kind, and on the methods of evaluating the toxicity. It puts together comprehensive and up-to-date information about sustainable approaches in making an eco-friendly environment using advanced nanotechnologies. It educated readers about the new frontiers and scope of employing various state-of-art nano-technologies to clean-up and save our environment. This book will be of interest to teachers, researchers, environmental biotechnologists, capacity builders and policymakers. Also the book serves as additional reading material for undergraduate and graduate students of agriculture, environmental sciences, environmental engineering and biotechnology.