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KEY=ENGINEERING - MARLEY WILCOX

Frontier Computing Proceedings of FC 2020

Springer Nature This book gathers the proceedings of the 10th International Conference on Frontier Computing, held in Singapore, on July 10–13, 2020, and provides comprehensive coverage of the latest advances and trends in information technology, science, and engineering. It addresses a number of broad themes, including communication networks, business intelligence and knowledge management, web intelligence, and related fields that inspire the development of information technology. The respective contributions cover a wide range of topics: database and data mining, networking and communications, web and Internet of things, embedded systems, soft computing, social network analysis, security and privacy, optical communication, and ubiquitous/pervasive computing. Many of the papers outline promising future research directions, and the book benefits students, researchers, and professionals alike. Further, it offers a useful reference guide for newcomers to the field.

Frontiers of Cyberlearning

Emerging Technologies for Teaching and Learning

Springer This book demonstrates teachers' and learners' experiences with big data in education; education and cloud computing; and new technologies for teacher support. It also discusses the advantages of using these frontier technologies in teaching and learning and predicts the future challenges. As such, it enables readers to better understand how technologies can improve learning and teaching experiences. It is intended for graduates and scholars in educational technology disciplines and anyone interested in the applications of frontier technologies in education.

Emerging Contaminants

BoD - Books on Demand Emerging Contaminants presents the reader with information on classification, recent studies, and adverse effects on the environment and human health of the main classes of contaminants. Emerging contaminants are synthetic or natural compounds and microorganisms produced and used by humans that cause adverse ecological and human health effects when they reach the environment. This book is organized into four sections that cover the classification of contaminants and the instrumental techniques used to quantify them, recent studies on pesticides, antibiotics as an important group of emerging contaminants, and studies of different classes of emerging contaminants such as polybrominated diphenyl ethers (PBDEs), microplastics, and others.

Frontiers in Water-Energy-Nexus—Nature-Based Solutions, Advanced Technologies and Best Practices for Environmental Sustainability

Proceedings of the 2nd WaterEnergyNEXUS Conference, November 2018, Salerno, Italy

Springer Nature 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.

Exemplary Practices in Marine Science Education

A Resource for Practitioners and Researchers

Springer This edited volume is the premier book dedicated exclusively to marine science education and improving ocean literacy, aiming to showcase exemplary practices in marine science education and educational research in this field on a global scale. It informs, inspires, and provides an intellectual forum for practitioners and researchers in this particular context. Subject areas include sections on marine science education in formal, informal and community settings. This book will be useful to marine science education practitioners (e.g. formal and informal educators) and researchers (both education and science).

Frontiers in Environmental Science – Editor’s Picks 2021

Frontiers Media SA

Frontier Information Technology and Systems Research in Cooperative Economics

Springer Nature This book is the very first book-length study devoted to the advances in technological development and systems research in cooperative economics. The chapters provide, first of all, a coherent framework for understanding and applying the concepts and approaches of complexity and systems science for the advanced study of cooperative networks and particular cooperative enterprises and communities. Second, the book serves as a unique source of reliable information on the frontier information technologies available for the production, consumer, credit, and agricultural cooperative enterprises, discussing predominant strategies, potential drivers of change, and responses to complex problems. Given the diverse range of backgrounds and advanced research results, researchers, decision-makers, and stakeholders from all fields of cooperative economics in any country of the world will undoubtedly benefit from this book.

New Frontiers of Nanomaterials in Environmental Science

Springer Nature 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.

Systems and Synthetic Biology

Springer This textbook has been conceptualized to provide a detailed description of the various aspects of Systems and Synthetic Biology, keeping the requirements of M.Sc. and Ph.D. students in mind. Also, it is hoped that this book will mentor young scientists who are willing to contribute to this area but do not know from where to begin. The book has been divided into two sections. The first section will deal with systems biology - in terms of the foundational understanding, highlighting issues in biological complexity, methods of analysis and various aspects of modelling. The second section deals with the engineering concepts, design strategies of the biological systems ranging from simple DNA/RNA fragments, switches and oscillators, molecular pathways to a complete synthetic cell will be described. Finally, the book will offer expert opinions in legal, safety, security and social issues to present a well-balanced information both for students and scientists.

Proceedings of International Conference on Frontiers in

Computing and Systems

COMSYS 2020

Springer Nature This book gathers outstanding research papers presented at the International Conference on Frontiers in Computing and Systems (COMSYS 2020), held on January 13–15, 2019 at Jalpaiguri Government Engineering College, West Bengal, India and jointly organized by the Department of Computer Science & Engineering and Department of Electronics & Communication Engineering. The book presents the latest research and results in various fields of machine learning, computational intelligence, VLSI, networks and systems, computational biology, and security, making it a rich source of reference material for academia and industry alike.

Nanotechnology for Energy and Environmental Science

Elsevier Nanotechnology for Energy and Environmental Science offers a comprehensive overview of nanotechnology, its current status, current challenges and future opportunities. The book touches on the fundamentals principles of nanotechnology, discusses the uniqueness of these materials and relates the specific properties of a system to its potential applications. Each chapter is written by a leading expert in the nano-related fields (materials science, environmental engineering, nanotechnology, and green energy) from industry, academia, and governmental research laboratories and agencies who will discuss in this book the challenges and opportunities in translating the potentials of nanotechnology for real applications. This book provides a wealth of information to researchers including graduates and postgraduates students who are studying and/or working in a variety of fields from chemical engineering, chemistry, materials science, physics, biotechnology, catalysis, environmental protection, natural resource utilization, energy production and storage and etc. the content could also be used by various other professionals, ie consultants, policy makers etc, during the decision making process.

Biological Invasions

Springer Science & Business Media This new volume on *Biological Invasions* deals with both plants and animals, differing from previous books by extending from the level of individual species to an ecosystem and global level. Topics of highest societal relevance, such as the impact of genetically modified organisms, are interlinked with more conventional ecological aspects, including biodiversity. The combination of these approaches is new and makes compelling reading for researchers and environmentalists.

Frontier and Innovation in Future Computing and Communications

Springer Science & Business IT technology engineering changes everyday life, especially in Computing and Communications. The goal of this book is to further explore the theoretical and practical issues of Future Computing and Communications. It also aims to foster new ideas and collaboration between researchers and practitioners.

New Frontiers in Sustainable Aviation

Springer This book examines recent progress and new technological developments in sustainable aviation. It covers alternative fuel types, propulsion technologies, and aerial vehicle (unmanned aerial vehicles, drones, passenger air) emission reduction technologies. The effects of these technologies on vehicle performance, cost, and environmental impact are discussed, and case studies, practical applications, and engineering solutions and methodologies are provided. This collection will be an invaluable reference for researchers, practicing engineers, and students. Highlights recent progress in sustainable aviation; Presents alternative fuel types and propulsion technologies; Includes case studies and practical applications.

On the Frontiers of Climate and Environmental Change

Vulnerabilities and Adaptations in Central Vietnam

Springer Science & Business Media This book is intended to fill a gap in climate-change literature by providing a comprehensive regional study and identifying the overall adaptation challenges in a real-life context. The way in which possible climate impacts interact with a range of other challenges in agriculture, forestry, disaster planning, health care, general economic development, and common livelihoods are presented, and it is argued that greater realism and broader vision are needed in order to address the climate challenge. For instance, unsuitable land-use changes in both coastal and highland regions may increase the vulnerability of rural people, many of whom are already living on the fringes. The author(s) also state(s) that, depending on context, it may be pertinent to address short-term and unsustainable resource use, irregularities in local land management, ineffective governance and social inequality, which are all likely to aggravate the impact of external climate and weather. Not least, it is imperative to integrate general environmental management with any climate-change adaptation effort.

Current Developments in Biotechnology and Bioengineering

Smart Solutions for Wastewater: Road-mapping the Transition to Circular Economy

Elsevier Smart Solutions for Wastewater: Road-mapping the Transition to Circular Economy, the latest release in the Current Developments in Biotechnology and Bioengineering presents up-to-date information on research and technological developments of resource recovery in wastewater treatment in terms of carbon, nutrients and energy. The book fulfils the gaps and current challenges that hinder the application of resource recovery facilities in wastewater treatment plants, discusses knowledge gaps, provides future research perspectives, and discusses strategies to solve problems from a circular economy perspective. It is an excellent, interdisciplinary and updated overview of technologies in terms of potential yields, pollutants removal, nutrients recovery and energy production. Covers different aspects of resource recovery technologies and research gaps in wastewater treatment Focuses on

different MBR configurations and systems/hybrid systems in treating a large variety of wastewaters Provides state-of-the-art technology developments, including technology, advantages and challenges as well as strategies to overcome limitations Includes technologies for managing sewage sludge in order to foster solutions for recovering in a circular economy context

Biomass, Biofuels, Biochemicals

Microbial Electrochemical Technology: Sustainable Platform for Fuels, Chemicals and Remediation

Elsevier Biomass, Biofuels, Biochemicals encompasses the potential of microbial electrochemical technologies, delineating their role in developing a technology for abating environmental crisis and enabling transformation to a sustainable future. The book provides new and futuristic methods for bioelectrogenesis, multiple product synthesis, waste remediation strategies, and electromicrobiology generation which are widely essential to individuals from industry, marketing, activists, writers, etc. In addition, it provides essential knowledge transfer to researchers, students and science enthusiasts on Microbial Electrochemical Technologies, detailing the functional mechanisms employed, various operational configurations, influencing factors governing the reaction progress and integration strategies. With these key topics and features, the book generates interest among a wide range of people related to renewable energy generation and sustainable environmental research. Depicts the holistic view of the multiple applications of Microbial Electrochemical Technologies (METs) in a unified comprehensible manner Provides strategic integrations of MET with various bioprocesses that are essential in establishing a circular biorefinery Widens the scope of the existing technologies, giving up-to date, state-of-the-art information and knowledge on research and commercialization Contains topics that are lucid, providing interdisciplinary knowledge on the environment, molecular biology, engineering, biotechnology, microbiology and economic aspects Includes more than 75 illustrations, figures, diagrams, flow charts, and tables for further study

The Science of Citizen Science

Springer Nature This open access book discusses how the involvement of citizens into scientific endeavors is expected to contribute to solve the big challenges of our time, such as climate change and the loss of biodiversity, growing inequalities within and between

societies, and the sustainability turn. The field of citizen science has been growing in recent decades. Many different stakeholders from scientists to citizens and from policy makers to environmental organisations have been involved in its practice. In addition, many scientists also study citizen science as a research approach and as a way for science and society to interact and collaborate. This book provides a representation of the practices as well as scientific and societal outcomes in different disciplines. It reflects the contribution of citizen science to societal development, education, or innovation and provides an overview of the field of actors as well as on tools and guidelines. It serves as an introduction for anyone who wants to get involved in and learn more about the science of citizen science.

Positive Psychology in Second and Foreign Language Education

Springer Nature This book demonstrates how resources taken from positive psychology can benefit both teachers and learners. Positive psychology is the empirical study of how people thrive and flourish. This book explores a range of topics, such as affectivity and positive emotions, engagement, enjoyment, empathy, positive institutions, a positive L2 self-system, as well as newly added Positive Language Education. Some papers in this collection introduce new topics such as the role of positive psychology in international higher education, a framework for understanding language teacher well-being from an ecological perspective, or positive institutional policies in language education contexts.

Development in Wastewater Treatment Research and Processes

Bioelectrochemical Systems for Wastewater

Management

Elsevier Industrial wastewater contains a large variety of compounds, such as hazardous organic pollutants, heavy metals, salts and nutrients, which makes its treatment challenging. On the other hand, the sewage treatment with existing technologies is not cost-effective due to high energy demand and contributes to greenhouse gas emission. Thus, the use of conventional water treatment methods is neither sustainable nor always effective. In this sense, BESs has emerged as a promising technology to treat complex industrial wastewater with a sustainable manner. Development in Wastewater Treatment Research and Processes: Bioelectrochemical Systems for Wastewater Management analyses and discusses the potential of microbial and electrochemical based hybrid processes for the treatment of complex industrial wastewater along with the recovery of valuable compounds and water reutilization. The most significant advantages of BES are high effectiveness, low toxicity, gentle operation conditions, environmentally friendly treatment without sludge accumulation and energy conservation. Bioelectrochemical systems (BES) are emerging as an exciting platform to convert chemical energy of organic wastes into electricity or hydrogen or value-added chemical commodities. In addition, recent and future trends in BES are highlighted. Discusses the fundamentals of biological wastewater treatment and bio-electrochemical systems, advantages, limitations and promising solutions of different types of energy recovery options from wastewater Presents the recent trends and developments in BES for achieving the sustainable wastewater treatment Covers the applications of BES and BES-based hybrid treatment technologies for wastewater treatment Includes carbon capture and resource recovery other than energy from wastewater using BES systems Addresses the challenges in the full-scale implementation of BES in existing and new wastewater treatment plants

Extraterrestrial Altruism

Evolution and Ethics in the Cosmos

Springer Science & Business Media Extraterrestrial Altruism examines a basic assumption of the Search for Extraterrestrial Intelligence (SETI): that extraterrestrials will be transmitting messages to us for our benefit. This question of whether extraterrestrials will be altruistic has become increasingly important in recent years as SETI scientists have begun contemplating transmissions from Earth to make contact. Technological civilizations that transmit signals for the benefit of others, but with no immediate gain for themselves,

certainly seem to be altruistic. But does this make biological sense? Should we expect altruism to evolve throughout the cosmos, or is this only wishful thinking? Is it dangerous to send messages to other worlds, as Stephen Hawking has suggested, or might humankind benefit from an exchange with intelligence elsewhere in the galaxy? Would extraterrestrial societies be based on different ethical principles, or would we see commonalities with Earthly notions of morality? Extraterrestrial Altruism explores these and related questions about the motivations of civilizations beyond Earth, providing new insights that are critical for SETI. Chapters are authored by leading scholars from diverse disciplines—anthropology, astronomy, biology, chemistry, computer science, cosmology, engineering, history of science, law, philosophy, psychology, public policy, and sociology. The book is carefully edited by Douglas Vakoch, Director of Interstellar Message Composition at the SETI Institute and professor of clinical psychology at the California Institute of Integral Studies. The Foreword is by Frank Drake. This interdisciplinary book will benefit everybody trying to understand whether evolution and ethics are unique to Earth, or whether they are built into the fabric of the universe.

Sustainable Aviation

Springer This book provides readers with a basic understanding of the concepts and methodologies of sustainable aviation. The book is divided into three sections : basic principles the airport side, and the aircraft side. In-depth chapters discuss the key elements of sustainable aviation and provide complete coverage of essential topics including airport, energy, and noise management along with novel technologies, standards and a review of the current literature on green airports, sustainable aircraft design, biodiversity management, and alternative fuels. Engineers, researchers and students will find the fundamental approach useful and will benefit from the many engineering examples and solutions provided.

GNSS Environmental Sensing

Revolutionizing Environmental Monitoring

Springer This book is the second edition of Environmental Monitoring using GNSS and highlights the latest developments in global navigation satellite systems (GNSS). It features a completely new title and additional chapters that present emerging challenges to environmental monitoring—“climate variability/change and food insecurity.” Since the publication of the first edition, much has changed in both the development and applications of GNSS, a satellite microwave remote sensing technique. It is the first tool to span

all four dimensions of relevance to humans (position, navigation, timing and the environment), and it has widely been used for positioning (both by military and civilians), navigation and timing. Its increasing use is leading to a new era of remote sensing that is now revolutionizing the art of monitoring our environment in ways never imagined before. On the one hand, nearly all GNSS satellites (Global Positioning System (GPS), Global Navigation Satellite System (GLONASS), Galileo and Beidou) have become operational, thereby providing high-precision, continuous, all-weather and near real-time remote sensing multi-signals beneficial to environmental monitoring. On the other hand, the emerging challenges of precisely monitoring climate change and the demand for the production of sufficient food for ever-increasing populations are pushing traditional monitoring methods to their limits. In this regard, refracted GNSS signals (i.e., occulted GNSS signals or GNSS meteorology) are now emerging as sensors of climate variability, while the reflected signals (GNSS reflectometry or GNSS-R) are increasingly finding applications in determining, e.g., soil moisture content, ice and snow thickness, ocean heights, and wind speed and direction, among others. Furthermore, the increasing recognition and application of GNSS-supported unmanned aircraft vehicles (UAV)/drones in agriculture (e.g., through the determination of water holding capacity of soil) highlights the new challenges facing GNSS. As such, this new edition three new chapters address GNSS reflectometry and applications; GNSS sensing of climate variability; and the applications in UAV/drones. Moreover, it explores the application of GNSS to support integrated coastal zone management.

Engineered Nanomaterials for Innovative Therapies and Biomedicine

Springer Research on biomedical applications of nanomaterials has exhibited the rapidly evolving field of biomedical sciences by showing how effective they are in treatment. These particles hold considerable potential for biomedical applications. Work is ongoing, and the results suggest a possibility for a sustainable future for nanomaterials in both therapeutic and biomedical fields. This book highlights current and emerging applications, taking global research findings into consideration. We believe the focus on the identification and role of nanomaterial applications in therapeutic and biomedical sciences can lead to novel solutions in the fields. The chapters of this book are disseminated in a manner that can be readily adopted as sources for new and further study. The editors integrate advanced texts in their research that help graduate students, researchers and professors. Additionally, we believe that international readers will be able to make use of this book for reference purposes.

Methods in Ecoacoustics

The Acoustic Complexity Indices

Springer This book represents an introduction to ecoacoustics theory, to the application of the Acoustic Complexity Indices (ACIs) to acoustic survey, and to the use of an innovative software to process acoustic data. It enables readers to comprehend the main principles that guide the recent development of ecoacoustics and offers a synthesis about the role of sound in the ecological research. Readers will be introduced to the use of the ACIs by a detailed description of the main algorithms recently formulated and on their correct application in the acoustic processing concurring to the creation of sonic information systems. Readers will also find a new dedicated software application, namely SonoScape, that is described in detail with its codes attached in the supplementary material in a completely visible format. The SonoScape is a performing software application operating in MatLab® and is enriched of several options to manage single and large collection of acoustics files. It vides the feasibility to process data at different temporal scale, using different combination of parameters, and to extract novel complexity measures such as entropy and fractal dimension of ecoacoustic events. It also offers functions to visualize the results using customized 3-D plots or ternary plots, intuitively demonstrating the patterns of ACIs based on the vast number of numerical results. Finally, this book provides several examples of case studies with the aim of better understanding the potentiality of ACIs and the power of SonoScape as multitasking software to approaching the complexity of the ecoacoustic investigation. Students and scholars in ecology, land managers and technicians may find an important tool to interpret the complex relationship between humans and natural processes when sounds are adopted as proxy.

Frontiers of Real Estate Science in Japan

Springer Nature This open access book presents recent research and hot topics in the field of real estate science in Japan. It features carefully selected English translations of peer-reviewed papers and excellent articles published in the Japanese Journal of Real Estate Sciences, as well as papers presented at the Japan Association of Real Estate Sciences (JARES) annual conference. The topics covered include market analyses of vacant houses, policies for reuse of vacant houses, property tax policy, issues of land for which the owners are unknown, disaster and real estate values, the siting optimization plan and its influence on real estate, big data and ICT technology

for the real estate business, and public real estate management. Real estate science in Japan has developed in step with international research in the fields of law and economics, regional science, civil engineering, environmental science, architectonics, and related areas. At the same time, it has evolved into a unique discipline that focuses on policy-oriented practical science with arguments for the reform of outdated laws, regulations, and traditional customs. Asian countries are currently growing rapidly and are catching up with developing countries. The lessons learned and know-how accumulated by JARES is helpful for practitioners and policymakers not only in Japan, but also in other Asian countries.

Physician's Field Guide to Neuropsychology Collaboration through Case Example

Springer This unique volume teaches those in the medical fields about the scientific value of neuropsychology in assessing cognition, the 6th vital sign, as part of well integrated collaborative care. It offers physicians a comprehensive tour of the many dimensions neuropsychology can add to primary and specialized medical care across the lifespan. Noted experts examine cognitive ramifications of a wide range of medical, psychological, and neuropsychological conditions, among them brain tumors, stroke, epilepsy, pediatric and adult TBI, schizophrenia, and adult ADHD. The book's generous selection of case examples demonstrates the benefits of cognitive assessment in building accurate diagnoses, better understanding of patient needs, and more appropriate treatment and management strategies, as well as other neuropsychologist roles in consulting, referral, and forensic areas. In addition, tables, callout boxes, review questions, and other features are included throughout the text for ease in comprehension and retention. A sampling of the coverage:

- The value of neuropsychological evaluation in medical practice.*
- A model of collaboration between primary care and neuropsychology.*
- Neuropsychological assessment of extremely preterm children.*
- Alzheimer's Disease and overview of dementia.*
- Deep brain stimulation for Parkinson's Disease.*
- Neuropsychology in the 21st century: the rise of multicultural assessment.*
- Neuropsychological interventions for individuals with brain injury.*

The Physician's Field Guide to Neuropsychology is both a rigorous and an accessible reference for clinicians in diverse disciplines including general practice, family medicine, neuropsychology, pediatrics, gerontology, and sports medicine.

Embracing Diversity in the Learning Sciences

Proceedings of the Sixth International Conference of the Learning Sciences

Taylor & Francis More than a decade has passed since the First International Conference of the Learning Sciences (ICLS) was held at Northwestern University in 1991. The conference has now become an established place for researchers to gather. The 2004 meeting is the first under the official sponsorship of the International Society of the Learning Sciences (ISLS). The theme of this conference is "Embracing Diversity in the Learning Sciences." As a field, the learning sciences have always drawn from a diverse set of disciplines to study learning in an array of settings. Psychology, cognitive science, anthropology, and artificial intelligence have all contributed to the development of methodologies to study learning in schools, museums, and organizations. As the field grows, however, it increasingly recognizes the challenges to studying and changing learning environments across levels in complex social systems. This demands attention to new kinds of diversity in who, what, and how we study; and to the issues raised to develop coherent accounts of how learning occurs. Ranging from schools to families, and across all levels of formal schooling from pre-school through higher education, this ideology can be supported in a multitude of social contexts. The papers in these conference proceedings respond to the call.

New Frontiers in Engineering Geology and the Environment

Proceedings of the International Symposium on Coastal

Engineering Geology, ISCEG-Shanghai 2012

Springer Science & Business Media “New Frontiers in Engineering Geology and the Environment” collects selected papers presented at the International Symposium on Coastal Engineering Geology (ISCEG-Shanghai 2012). These papers involve many subjects – such as engineering geology, natural hazards, geoenvironment and geotechnical engineering – with a primary focus on geological engineering problems in coastal regions. The proceedings provide readers with the latest research results and engineering experiences from academic scientists, leading engineers and industry researchers who are interested in coastal engineering geology and the relevant fields. Yu Huang works at the Department of Geotechnical Engineering, Tongji University, China. Faquan Wu works at the Institute of Geology and Geophysics, Chinese Academy of Science, China and he is also the Secretary General of the International Association for Engineering Geology and the Environment. Zhenming Shi works at the Department of Geotechnical Engineering, Tongji University, China. Bin Ye works at the Department of Geotechnical Engineering, Tongji University, China.

Opening Science

The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing

Springer Modern information and communication technologies, together with a cultural upheaval within the research community, have profoundly changed research in nearly every aspect. Ranging from sharing and discussing ideas in social networks for scientists to new collaborative environments and novel publication formats, knowledge creation and dissemination as we know it is experiencing a vigorous shift towards increased transparency, collaboration and accessibility. Many assume that research workflows will change more in the next 20 years than they have in the last 200. This book provides researchers, decision makers, and other scientific stakeholders with a snapshot of the basics, the tools, and the underlying visions that drive the current scientific (r)evolution, often called ‘Open Science.’

Molecular and Cellular Approaches to Neural Development

Oxford University Press, USA This text provides a broad but authoritative view of the cellular and molecular aspects of developmental neurobiology written by leaders in the field.

Innovative Computing

Proceedings of the 4th International Conference on Innovative Computing (IC 2021)

Springer This book comprises select proceedings of the 4th International Conference on Innovative Computing (IC 2021) focusing on cutting-edge research carried out in the areas of information technology, science, and engineering. Some of the themes covered in this book are cloud communications and networking, high performance computing, architecture for secure and interactive IoT, satellite communication, wearable network and system, infrastructure management, etc. The essays are written by leading international experts, making it a valuable resource for researchers and practicing engineers alike.

Ethical and Social Issues in the Information Age

*Springer Science & Business Media An introduction to the social and policy issues which have arisen as a result of IT. Whilst it assumes a modest familiarity with computers, the book provides a guide to the issues suitable for undergraduates. In doing so, the author prompts students to consider questions such as: * How do morality and the law relate to each other? * What should be covered in a professional code of conduct for information technology professionals? * What are the ethical issues relating to copying software? * Is electronic monitoring of employees wrong? * What are the moral codes of cyberspace? Throughout, the book shows how in many ways the technological development is outpacing the ability of our legal systems, and how different paradigms applied to ethical questions*

often proffer conflicting conclusions. As a result, students will find this a thought-provoking and valuable survey of the new and difficult ethical questions posed by the Internet, artificial intelligence, and virtual reality.

Proceedings of I4SDG Workshop 2021

IFTToMM for Sustainable Development Goals

Springer Nature

Frontiers in Water-energy-nexus -- Nature-based Solutions, Advanced Technologies and Best Practices for Environmental Sustainability

Proceedings of the 2nd WaterEnergyNexus Conference, November 2018, Salerno, Italy

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.

RESTART Sustainable Business Model Innovation

Springer Taking the business model as point of departure, this open access book explores how companies and organizations can contribute to a more sustainable future by designing innovative models that are both sustainable and profitable. Based upon years of research, it draws together theoretical foundations and existing literature on the topic of sustainable business alongside case studies and practical solutions. After examining the theoretical foundations of sustainable business model innovation, the authors present their own framework - RESTART. Consisting of seven factors, this framework can be the basis for restarting any business model. The final section outlines a research agenda for sustainable business informed by the perspectives and frameworks put forward in this book.

Waste Biorefinery

Potential and Perspectives

Elsevier Waste Biorefinery: Potential and Perspectives offers data-based information on the most cutting-edge processes for the utilisation of biogenic waste to produce biofuels, energy products, and biochemicals - a critical aspect of biorefinery. The book explores recent developments in biochemical and thermo-chemical methods of conversion and the potential generated by different kinds of biomass in more decentralized biorefineries. Additionally, the book discusses the move from 200 years of raw fossil materials

to renewable resources and how this shift is accompanied by fundamental changes in industrial manufacturing technologies (from chemistry to biochemistry) and in logistics and manufacturing concepts (from petrochemical refineries to biorefineries). Waste Biorefinery: Potential and Perspectives designs concepts that enable modern biorefineries to utilize all types of biogenic wastes, and to integrate processes that convert byproduct streams to high-value products, achieving higher cost benefits. This book is an essential resource for researchers and students studying biomass, biorefineries, and biofuels/products/processes, as well as chemists, biochemical/chemical engineers, microbiologists, and biotechnologists working in industries and government agencies. Details the most advanced and innovative methods for biomass conversion Covers biochemical and thermo-chemical processes as well as product development Discusses the integration of technologies to produce bio-fuels, energy products, and biochemicals Illustrates specific applications in numerous case studies for reference and teaching purposes

Nanostructured Photocatalysts

From Fundamental to Practical Applications

Elsevier Nanostructured Photocatalysts: From Fundamental to Practical Applications offers a good opportunity for academic, industrial researchers and engineers to gain insights on the fundamental principles and updated knowledge on the engineering aspects and various practical applications of photocatalysis. This book comprehensively and systematically reviews photocatalytic fundamental aspects, ranging from reaction mechanism, kinetic modeling, nanocatalyst synthesis and design, essential material characterization using advanced techniques, and novel reactor design and scale-up. Future perspectives, techno-economical evaluation and lifecycle assessment of photocatalytic processes are also provided. Finally, a wide range of practical, important and emerging photocatalytic applications, namely wastewater treatment, air pollution remediation, renewable and green energy generation, and vital chemical production are thoroughly covered, making this book useful and beneficial for engineers, scientists, academic researchers, undergraduates and postgraduates. Provides a fundamental understanding of photocatalysis Covers all aspects of recent developments in photocatalytic processes and photocatalytic materials Focuses on advanced photocatalytic applications and future research advancements on energy, environment, biomedical, and other specialty fields Contains contributions from leading international experts in photocatalysis Presents a valuable reference for academic and industrial researchers, scientists and engineers

Frontiers in Plant–Soil Interaction

Molecular Insights into Plant Adaptation

Academic Press Plants face a wide range of environmental challenges, which are expected to become more intense as a result of global climate change. Plant-soil interactions play an important role in the functioning of ecosystems. Soil properties represent a strong selection pressure for plant diversity and influence the structure of plant communities and biodiversity. The complexity of plant-soil interactions has recently been studied by developing a trait-based approach in which responses and effects of plants on soil environment are quantified and modelled. This fundamental research on plant-soil interaction in ecosystems is essential to transpose knowledges of functional ecology to environmental management. Frontiers in Plant-Soil Interaction: Molecular Insights into Plant Adaptation will address topics that provide advances in understanding plant responses to soil conditions through the integration of genetic, molecular, and plant-level studies of diverse biotic and abiotic stresses under field and laboratory conditions. This book will be beneficial to students and researchers working on stress physiology and stress proteins, genomics, proteomics, genetic engineering and other fields of plant-soil interactions. Frontiers in Plant-Soil Interaction will also help scientists explore new horizons in their area of research. Brings together global leaders working in the area of plant-environment interactions and shares their research findings Presents current and future scenarios for the management of stressors Illustrates the central role for plant-soil interactions in applying basic research to address current and future challenges to humans

Frontiers in Computer Education

Springer Science & Business Media This book is the proceedings of the 2011 International Conference on Frontiers in Computer Education (ICFCE 2011) in Sanya, China, December 1-2, 2011. The contributions can be useful for researchers, software engineers, and programmers, all interested in promoting the computer and education development. Topics covered are computing and communication technology, network management, wireless networks, telecommunication, Signal and Image Processing, Machine Learning, educational management, educational psychology, educational system, education engineering, education technology and training. The emphasis is on methods and calculi for computer science and education technology development, verification and verification tools support, experiences from doing developments, and the associated theoretical problems.