Chapter

Crowdsourcing Applications in Agriculture

By *Achala Shakya, Gaurav Tripathi, Devarani Devi Ningombam*

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ABSTRACT

Farmers face a number of difficulties on a daily basis, including the inability to document farm input costs, farm chemical expenditures, and statistics on farm output, as well as obtain information from other stakeholders (such as agriculture advisers). Farmers' findings are gathered via a crowdsourcing strategy; the project is run through a smartphone application called ClimMob, which combines and analyzes decentralized field data from multiple growers. As more non-governmental groups and national agricultural research organizations use the online platform for their own initiatives, ClimMob is starting to take on a life of its own. When it comes to data accessibility, agricultural growth in remote places, and other factors, we come to the conclusion that mobile crowdsourcing (MCS) applications are highly valued in strengthening these areas.

Chapter

Hydrothermal Liquefaction and Carbonization for Sustainable Treatment of Sewage Sludge

By *Ayan Banerjee*, *Sangeeta Mohanty*, *Debashish Ghosh*, *Thallada Bhaskar*

Book   Sustainable Treatment and Management of Sewage Sludge

|	
Edition	1st Edition
First Published	2023
Imprint	CRC Press
Pages	20
eBook ISBN	9781003354765

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ABSTRACT

Sewage sludge is an emerging concern for the urban population and directly impacts public health. The volume of sludge is increasing with the load on the existing wastewater systems, and it is a serious time to consider its sustainable management. Sludge, an organic and nutrient-rich feedstock, is suitable for multiple conversion processes. But the generated quantity requires approaches that can withstand the required conversion rate. With this scope, the present chapter focuses on sewage sludge hydrothermal treatment, covering liquefaction, and carbonization. The significance of hydrothermal processing due to high moisture and sludge heterogeneity is discussed in detail. The considerations for process specifications are also underlined to indicate the potential utilization of products. In the end, pathway-based resources and energy recovery potential have been discussed for the sustainable conversion of sewage sludge through

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Application of Species Distribution Modeling for Conservation and Restoration of Forest Ecosystems

| Chapter | First Online: 03 May 2023

| pp 249–264 | Cite this chapter
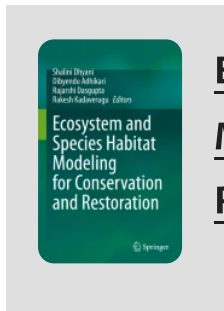
Ecosystem and Species Habitat Modeling for Conservation and Restoration

Shilky, B. S. P. C. Kishore, Gajendra Kumar, Purabi Saikia ✉ & Amit Kumar

Abstract

Climate change and habitat fragmentation are responsible for creating unstable and isolated populations of various rare, endangered, and threatened plant species in their natural habitats. Such species face unprecedented extinction risks due to changing climatic conditions, anomalous population growth, and their high dependency on natural forests. The use of species distribution models (SDMs) for forest restoration and conservation has gained a growing trend due to its significant contribution to improving the success rates of forest restoration projects. A critical aspect of the planning and conservation of forests is the selection of suitable management strategies that match the needs of the RET plant species in both the present and future climates. SDMs can help the

Chapter

Power Management in Wireless Sensor Networks

By *Prasanta Pratim Bairagi*, *Kanojia Sindhuben Babulal*, *Mala Dutta*

Book   Advanced Wireless Communication and Sensor Networks

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ABSTRACT

Due to their autonomous nature, wireless sensor networks (WSNs) are some of the most popular and highly utilized networks among the entire categories of wireless communication. The primary goal of a WSN application is to ensure that data is shared between the sensor nodes. Apart from the normal communication, WSN applications ensures the establishment of a network as well as sharing of information even when the establishment of a traditional network is not possible. In WSNs, the major issue is limited power resources. The quantity of energy used by a WSN is directly proportional to its lifespan. As a result, the energy used in a WSN is a valuable resource that must be carefully managed. This chapter provides an overview of the entire process of power consumption happening in a wireless sensor network, starting from the structure of a node to different levels of the network where the actual power consumption occurs. Following that, this chapter also highlights a brief list of possible ways to reduce power utilization at the
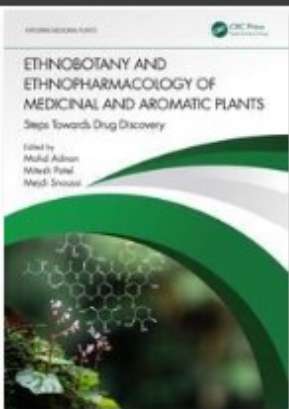
Chapter

Nanoformulations and Herbal Drug Development

By *Arif Jamal Siddiqui, Ritu Singh, Sadaf Jahan, Syed Amir Ashraf, Riadh Badraoui, Fevzi Bardakci, Sanjeev Kumar*

Book   Ethnobotany and Ethnopharmacology of Medicinal and Aromatic Plants

Edition	1st Edition
First Published	2023
Imprint	CRC Press
Pages	22
eBook ISBN	9781003284215

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ABSTRACT

Herbal drugs have been extensively used in several parts around the globe since ages. These drugs have been known for their efficacy against various ailments and have very little or insignificant side effects. Nowadays, nanotechnology has been gaining increasing interest in pharmaceutical industries for delivering the phytopharmaceuticals in a sustained manner to increase patient's amenability and escape repeated administration. Owing to their unique physiochemical characteristics, nano-based herbal formulations show enhanced bioavailability and binding receptor selectivity resulting in greater efficiency in comparison to their bulk counterparts and safety as well. The use of nanoformulations for herbal drugs delivery has a huge potential to expand the scope of operations and solve problems associated with phytopharmaceuticals. The present chapter is focused on various nanoformulations, herbal drug-loading techniques, and their applications in different areas.
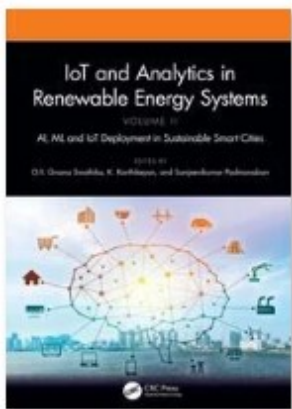
Chapter

Emerging Role of AI, ML and IoT in Modern Sustainable Energy Management

By *Arpan Tewary, Chandan Upadhyay, A.K. Singh*

Book   [IoT and Analytics in Renewable Energy Systems (Volume 2)](#)

Edition	1st Edition
First Published	2023
Imprint	CRC Press
Pages	16
eBook ISBN	9781003374121

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ABSTRACT

The relevance of modern computing tools and techniques is becoming quite significant nowadays. With time, such techniques will play a massive role in almost all spheres of human life to make it more comfortable. The renewable energy sector is also not an exception in this case. With the growing demand for clean energy and sustainable living, the need to integrate modern computing tools and techniques like Artificial Intelligence, Machine Learning and Internet of Things into the renewable energy sector is becoming more substantial. Such integration leads to meeting the demand satisfaction, improved output performance and reduced losses, which finally results in simultaneous as well as inclusive management of multiple energy generation, distribution and storage systems far and near. In this chapter, we put forward a wide-ranging discussion of these computing tools and how their integration can desirably upgrade our renewable energy systems as well as provide us with a robust platform for sustainable energy management. We have also included the pros and cons of these modern techniques and a few applications for each one of them in the renewable energy

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Home > Energy Materials > Chapter

Electrode Materials in Lithium-Ion Batteries

| Chapter | First Online: 28 July 2023

| pp 77–89 | Cite this chapter
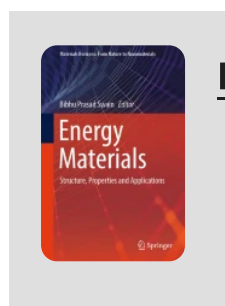
Energy Materials

R. Dash, P. Kommu & A. S. Bhattacharyya ✉

📚 **Part of the book series:** Materials Horizons: From Nature to Nanomaterials ((MHFNN))

👁 **448** Accesses

Abstract

Various combinations of Cathode materials like LFP, NCM, LCA, and LMO are used in
Lithium-Ion Batteries (LIBs) based on the type of applications. Modification of electrodes
by lattice doping and coatings may play a critical role in improving their electrochemical
properties, cycle life, and thermal behavior doping with metal ions like Al^{+3} and Zr^{+4} and
surface coating can enhance the properties of these materials. Increased thermal stability
in charged states, stabilized cycling with reduced capacity fading, and minimal side
reactions are desirable for good battery performance. The Li- and Mn-rich layered

Chapter 3
Startup Ecosystem for Rural Development in India

Sonam Prabhakar
Central University of Jharkhand, India

Ashok Nimesh
Central University of Jharkhand, India

Pawan Prabhakar
Indian Institute of Technology, Kharagpur, India

ABSTRACT

India has recently developed a robust startup ecosystem which is a growing startup market because of its energetic young businesspeople and entrepreneurs. By incorporating cutting-edge technology in their products, the entire ecosystem is continually expanding and growing livelier. These startups are also engaged in rural sector and successfully solving daily life problems and contributing a lot in the development of the nation. They are working in almost every sector of the rural, and boosting the economy and also solving unemployment issue. Therefore, these startups are becoming increasingly popular, they still have significant obstacles to overcome from its establishment to working. The article highlights the problems and difficulties that startup ecosystem is facing in current scenario in the country with useful suggestions and recommendation for its economic and sustainable growth.

INTRODUCTION

Entrepreneurship is establishing as a business or an organization by effectively organizing the three factors of production to deliver a unique and imaginative product to the market. Rural entrepreneurship assists a nation or region to achieve balanced regional development and aids in better resource utilization to boost the rural economy. Entrepreneurship is a sector with much potential to engage in many commercial, industrial, agricultural, and related activities that may significantly contribute to the country's economic progress (Patel and Chavda, 2013; Prabhakar et al., 2023). According to the World Bank,

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Corporate Social Responsibility and Role of the Indian State: A Transition Beyond Corporate Philanthropy

| Chapter | First Online: 21 June 2023

| pp 265–279 | Cite this chapter

Corporate Social Responsibility in Developing Countries

Kunal Debnath & Souvik Chatterjee

📚 Part of the book series: CSR, Sustainability, Ethics & Governance ((CSEG))

Abstract

Over the last few decades, both academic and business entities in the West and East have been attracted to the concept of corporate social responsibility (CSR). The modern-day definition of CSR has transcended beyond the philanthropic notion with the inclusion of CSR into core business operations. In developing societies, corporations, along with the state, are also entrusted with societal development, particularly toward the upliftment of the marginalized sections. Thus, CSR delineates a socially responsible behavior in business operations. CSR encourages the extractive industries to think beyond profits and

Chapter 2 - Recent advance in nanoparticle catalysts for C–C cross-coupling reaction

Shipra Sagar [a], Snigdha Rani Patra [b], Sabyasachi Bhunia [b]

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Abstract

Transition metal nanoparticles (NPs) have fascinated extraordinary attention in the last decade for their potential applications as catalysts, due to high surface-to-volume ratio and reactive morphologies that allow faster reaction rate under milder pressure even at very low catalyst loadings. Here, we will focus the role of nanoparticle catalysts in the C–C cross-coupling reactions: Heck-Mizoroki, Suzuki-Miyaura, Sonogashira, and Negishi reactions and potential application of various metal nanoparticles that exhibited a flourishing perception in organic synthesis. Here, we also emphasize visible light-induced coupling reaction by green organic synthesis protocol. In this chapter, our effort is to summarize few old and mostly recent advances in the development of synthetic strategies of various transition metal-based nanostructured catalysts that support fruitful applications in organic synthesis. Furthermore, we discuss here some challenges and opportunities of research in the near future in this promising area.

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Chapter 14 - SRM-based quantification of snowmelt runoff in the Beas River Basin of the Himalayan region with the aid of MODIS/TERRA snow cover data products

Pushpalata Kumari Sinha [a], Pratibha Warwade [a], A.B. Pachore [b], Renji Remesan [b]

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Abstract

Quantitative assessment of runoff generated from the melting of snow is important for the river basins having runoff from precipitation and snowmelt. Studying snowmelt runoff is more valid in the era of changing climate as snow and glacier are found to be more prone to changes in temperature. In this analysis, the snowmelt runoff model (SRM) was employed to estimate the runoff generated by the melting of snow in the Beas river basin with a catchment area of 20,303 km^2 in which about 777 km^2 is covered by glaciers and snow in the state of Himachal Pradesh, India. The SRM model was driven during the 2001–08 period with Gridded precipitation and temperature data from Asian Precipitation-Highly Resolved Observational Data Integration towards Evaluation of Water Resource (APHRODITE) with support of other data sources like MODIS/Terra data (MOD10A2) and Shuttle Radar Topography Mission digital elevation model (SRTM-DEM). Snow cover area depletion curves were prepared for all 12 elevation zones and it is reported that the most snow melts took place between May and August months. Furthermore, a sensitivity analysis on input parameters was performed in order to identify the critical factors for the successful implementation of SRM in the Beas River

Offline Measurements and Extraction of Fusion Cross Section

| Chapter | First Online: 24 February 2023

| pp 59–97 | Cite this chapter
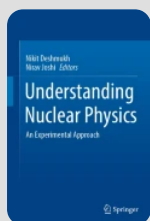
Understanding Nuclear Physics

Pankaj K. Giri, Rudra N. Sahoo ✉ & P. K. Rath

🔖 595 Accesses

Abstract

This chapter is mainly focused to explain the fusion cross-section measurements around the barrier and is organized in the following manner. First, a brief introduction is given on nuclear reactions, useful kinematics to plan an experiment, the importance of cross sections, the fusion cross-section expressions, details techniques of offline measurements, details of derivation of experimental fusion cross section, astrophysical applications of offline measurements, and end up with the summary and conclusion.

20 - Future perspectives of carbon quantum dots

Amit Banerjee [1], Sudip K. Batabyal [2], Basudev Pradhan [3][4], Kallol Mohanta [5], Rama Ranjan Bhattacharjee [6]

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Abstract

A perspective on current and emerging applications of carbon quantum dots (CQDs), with critical review of few specific areas, expected to change our day to day outlook has been discussed here: luminescent CQDs for optical sensing; biogreen CQDs for biotechnology and nanomedicines, CQDs as contrast agent in advanced imaging; colloidal CQDs for green optoelectronics to name a few.

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7 - Photovoltaic application of carbon quantum dots

Prashant Kumar [1], Arup Mahapatra [1] [2], Sandeep Kumar [1], Basudev Pradhan [1] [2]

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Abstract

Carbon quantum dots (CQDs) play a very significant role in photovoltaic applications because of their excellent optoelectronic properties such as bandgap tunability, excellent photostability, high photoluminescence, excellent conductivity, and robust chemical inertness. The CQDs have been extensively investigated in photovoltaic devices with various important roles such as a sensitizer, photon absorber, carrier transport layer, energy band shifter, etc. which significantly contributed to the enhancement of the device performances. Such overarching involvement of CQDs in photovoltaic devices has been due to their notable basic characteristics such as low toxicity, cheaper price, easy processability, and accessibility along with excellent material characteristics. In this chapter, application of CQDs in various types of solar cells such as dye-sensitized solar cells, organic solar cells, solid-state solar cells, and perovskite solar cells with different capacities have been discussed thoroughly. Various low-cost natural-extract-derived CQDs have been utilized in the fabrication of photovoltaic devices that are reviewed in this chapter. All-weather solar cells which are a growing topic of research have also been discussed in light of CQDs with future prospects of further improvement.

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Overview of Waste Stabilization Ponds in Developing Countries

| Chapter | First Online: 23 July 2021

| pp 153–175 | Cite this chapter

Cost-efficient Wastewater Treatment Technologies

Syeda Ulfath Tazeen Kadri, Adinath N. Tavanappanavar, R. Nagesh Babu, Muhammad Bilal, Bhaskar Singh, Sanjay Kumar Gupta, Ram Naresh Bharagava, Muthusamy Govarthanan, Mohammed Azharuddin Savanur & Sikandar I. Mulla

Part of the book series: The Handbook of Environmental Chemistry ((HEC, volume 117))

553 Accesses

Abstract

Wastewater treatment facilities have high operational costs and are significant users of energy, due to which <38% percent of municipal as well as industrial wastewater generated by developing countries undergoes treatment of any kind. Waste stabilization ponds (WSPs) are man-made earthen basins used for the treatment of wastewater using

Solid-State Welding of Magnesium Alloys

| Chapter | First Online: 19 November 2022
| pp 123–145 | Cite this chapter
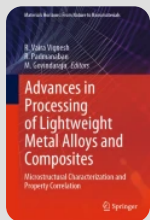
Advances in Processing of Lightweight Metal Alloys and Composites

Arpan Tewary, Chandan Upadhyay & Rahul Kumar Yadav ✉

Abstract

Solid-state welding (SSW) for the production of magnesium alloys is one of the most promising methods. There are various methods used for solid-state welding of magnesium alloys. These are low-density structural alloys that improve energy efficiency and environmentally friendly nature, as well as being drivers of a circular economy model for sustainable architecture and an inventive ecology. While the use of magnesium alloys is expected to increase, it is critical to understand how welded connections behave mechanically and structurally. We have categorically covered all the different types of solid-state welding for magnesium alloys with their pros and cons and different

Preserving the pottery in India: A traditional medium of science communication 🛒

Amit Kumar ✉ ; Rabindranath Sarma

➕ Author & Article Information

Pottery in the form of artistic expression, is one of the important ways of communicating the traditional knowledge and information as it communicates valuable information about the human past with the help of earthen made vessels and idols. It has communicated the information even before technology has made a room for science communication. Science Communication incorporates the communication among groups within the scientific community, counting those in academic world and industry. The academician from science and social science background has got many valuable information from pottery and so is the government, media (including museums and science centers) and general public. Therefore, Pottery talks and communicates the information. This paper will focus on preserving the pottery in India: A traditional medium of science Communication, as community associated with it, known as *Kumhar* are losing interest eventually in practicing pottery.

Topics

Social science, **Knowledge**, **Outreach**, **Museums**, **Careers and professions**, **Industry**

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On construction of Hadamard matrices
🛒

Shipra Kumari ✉ ; Hrishikesh Mahato

➕ Author & Article Information

A series of Hadamard matrix (HM) has been developed using some block matrices with the help of skew Hadamard matrix (SHM). Basically an internal structure of skew Hadamard matrix (SHM) has been changed with some block matrices using kronecker product. For some parameter t, where t is an integer, HM's of order $4t$ has been found.

Topics

Matrix methods

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Investigations on Performance Parameters of Phakic Intraocular Lens using a Wavefront Sensor

Avijit Prakash, Arpit Gupta, Dali Ramu Burada, and Gufran S Khan

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PDF Article

Abstract

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Abstract

The paper presents a slope based wavefront sensor for testing of phakic Intraocular lenses (pIOLs). A Shack-Hartmann wavefront sensor is used to measure the performance parameters in order to optimise the pIOLs. Both the simulation and experimental results have been presented.

PDF Article | ◧ Presentation Video

Automated Diagnosis of Lymphatic Filariasis: A Robust Approach for Microflariae Detection using Image Processing and Stacking Classifier

Publisher: IEEE

Cite This

PDF

Priyanka Kumar ; Kanojia Sindhuben Babulal   All Authors

Abstract

Document Sections

I. Introduction

II. Related Work

III. Research Methodology

IV. Result Evaluation

V. Conclusion and Future Work

Authors

Figures

References

Keywords

Metrics

Abstract:

Lymphatic Filariasis (LF) is a debilitating disease that results from bites by disease-carrying vectors. It leads to severe physical deformities and disabilities in affected individuals. Presently, the detection of LF relies on the visual identification of microfilariae parasites in peripheral blood samples, a procedure performed by trained hematologists. Nevertheless, this manual investigation approach poses the potential for inconsistent results. The primary goal of this research paper is to introduce an automated diagnostic approach designed to detect the presence of microfilariae in blood smear samples, with a particular emphasis on identifying cases of Lymphatic Filariasis. The methodology consists of introducing some pre-processing techniques like Color space conversion and the use of a Median filter. Further, the images are segmented to mark the region of interest on microfilariae dropping its background noises. A diverse range of textural features is extracted, serving as input to the stacking classifier, resulting in an impressive accuracy rate of 95%. The achieved accuracy rate provides strong confidence in the viability and applicability of the proposed methodology for real-world diagnostics.

Fusion barrier distribution from measurement of quasielastic scattering at $\theta_{\mathrm{c.m.}} = 180°$

Rohan Biswas[1], S Nath[1], J Gehlot[1], Gonika[1], Chandra Kumar[1], A Parihari[2], N Madhavan[1], A Vinayak[3], Amritraj Mahato[4], Shoaib Noor[5] and Phurba Sherpa[2]

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[5]Thapar Institute of Engineering and Technology, Patiala 147004, India

E-mail: `subir@iuac.res.in`

Abstract. Distribution of fusion barriers reveals the effect of structure of the collision partners on the dynamics of fusion between two heavy ions. Experimental barrier distribution can be extracted from precisely measured fusion excitation function. Quasielastic excitation function is related to fusion excitation function by conservation of incident flux. Hence, barrier distribution can also be extracted from quasielastic excitation function, which is usually measured at large angles, by detecting the back-scattered projectile-like ions. However, the reflectance coefficient is exactly complementary to the transmittance coefficient at $\theta_{\mathrm{c.m.}} = 180°$, which corresponds to orbital angular momentum, $\ell = 0$. We report here extraction of fusion barrier distribution for ^{16}O+^{142}Ce from measurement of quasielastic scattering at $\theta_{\mathrm{c.m.}} = 180°$, by detecting the target-like ions in the forward angles using a recoil mass spectrometer. Quasielastic excitation functions were also measured by detecting the projectile-like ions at two large angles. Barrier distributions extracted from both fusion and quasielastic measurements were found to be nearly identical. This work, thus, provided the first experimental verification of validity of the scaling property and the iso-centrifugal approximation in extracting barrier distribution from quasielastic excitation functions measured at large angles.

1. Introduction

Fusion between two light nuclei can be described in terms of simple potential models. On the other hand, static deformation and surface vibrations of the collision partners and nucleon transfer channels are known to influence the dynamics of fusion between two heavy nuclei [1, 2]. Coupling of the relative motion with other degrees of freedom leads to splitting of the single fusion barrier into a continuous distribution of barriers. Barrier distribution (D) had been defined as the second derivative of the energy-weighted fusion cross sections (σ_{fus}) [3], *i.e.*,

$$D_{\mathrm{fus}}(E) = \frac{d^2}{dE^2} \left[E\sigma_{\mathrm{fus}}(E) \right] \ . \tag{1}$$

Here, E stands for energy available in the centre of mass (c.m.) frame of reference. D_{fus} has been extracted from precisely-measured fusion excitation functions for a large number of reactions over decades.

WhatsApp Communities: Educational Use Cases

Cite This

PDF

Sai Gattupalli ; Poulomi Chakravarty ; Urjani Chakravarty ; Ivon Arroyo   All Authors

Abstract

Document Sections

I. Introduction

II. Whatsapp in Education

III. WAC and Potential Use Cases in Education

IV. Challenges and Concerns

V. Final Thoughts

Authors

Figures

References

Abstract:
This paper explores the potential use cases of WhatsApp Communities (WACs) in the realm of education. We examine the unique features of WACs, such as the capacity to manage up to 50 groups and the Announcement Channel functionality, which enables sending tailored messages to all community members. Our discussion highlights how these capabilities can enhance communication and collaboration among students, teachers, and administrators, offering valuable opportunities for virtual education. Furthermore, we emphasize the potential of WACs in promoting learner literacy and citizenship, ultimately contributing to the ongoing evolution of our education systems for the future.

Pre-processing Pipelines for Effective Segmentation of Lymphatic Filariasis Parasite Images

| Conference paper | First Online: 21 September 2023

| pp 403–414 | Cite this conference paper

Advanced Computational and Communication Paradigms

(ICACCP 2023)

Priyanka Kumar & Kanojia Sindhuben Babulal ✉

📖 **Part of the book series:** Lecture Notes in Networks and Systems ((LNNS, volume 535))

📰 **Included in the following conference series:**
International Conference on Advanced Computational and Communication Paradigms

Abstract

Lymphatic Filariasis commonly known as 'Elephantiasis' is a vector congenital disease that creates disfiguring as well as disabling in the forbearer. This gruesome disease is acquired in the childhood phase, but its clinical manifestation arises subsequently in life. It may cause short-term or perpetual disability. The significance of developing robust and
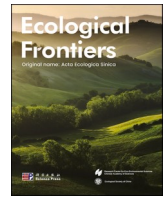
Human-induced impacts on ecological infrastructure in the Himalayan urban agglomerations

Diksha [a], Amit Kumar [a,d,*], Purabi Saikia [b,d], Prashant Srivastava [c]

[a] Department of Geoinformatics, Central University of Jharkhand, Ranchi 835205, India
[b] Department of Environmental Sciences, Central University of Jharkhand, Ranchi 835205, India
[c] Institute of Environment and Sustainable Development, Banaras Hindu University, Varanasi 221005, India
[d] IUCN Commission of Ecosystem Management, South Asia

ARTICLE INFO

ABSTRACT

The spatial dimensions of urban ecological services (UESs) transformation and population density in major Himalayan urban agglomerations (UAs) were analyzed to deduce the impacts of anthropogenic activities in recent decades (1991–2018). The multi-satellite-based study exhibited a remarkable increase (193 sq. km; 15%) in the built infrastructure and a significant decline (−24%) in the ecological infrastructure in the Himalayan UAs. The continuous anthropogenic influence on the Himalayan ecosystems in the last three decades has created severe socio-economic-ecological consequences that have largely impacted green infrastructure (GI), which is receptive to conversion to built infrastructure. The large-scale UES alteration was evident within larger cities in the western and central Himalayas, in contrast to the low transformation in Eastern Himalayan cities barring Shimla UA. The investigation highlights the rapid and haphazard population influx and urban growth that imposed a higher risk of natural hazards in the Eastern and Central Himalayan UAs and necessitated suitable policies to build an ecologically sustainable urban ecosystem.

1. Introduction

Cities are characterized by high population densities and built infrastructure and are the centers of complex socio-economic-ecological interactions [38,47]. Uncontrolled population expansion has mostly led to haphazard and unregulated urban growth [8,23], which leads to rapid conversion of ecological infrastructures (blue-green infrastructure) to built infrastructures and hence causes ecological imbalances [1,27,28]. The ecological infrastructure within or in proximity to the built environment delivers ecosystem services at different spatial scales [6,11,17]. Rapid transformation in urban ecological services (UESs), primarily triggered due to the lack of proper management and policies for urban growth and land use planning, has significant impacts on the local and regional environment [39,42]. It often led to the irreversible loss of green infrastructure [25,40], biodiversity [29,51], and other regulating and provisioning services in urban ecosystems [7,9,27,28]. The process of ecological incursion and progression provides better insights into the geographies of urban growth over time and scale [31,56]. In the urban ecosystem, the process of incursion (population influx) replaces one ecological service with another primarily due to anthropogenic

influences that pose various socio-economic-ecological and cultural consequences [60]. In contrast, progression (horizontal urban growth) is a complementary process of incursion that helps in the development and establishment of new ecological services [5,55]. The high rate of population incursion in any urban ecosystem leads to a progression of the city, which tends to continuously push the urban influence outside the city periphery [2].

Around 24% of the globe is mountainous, accommodating ~12% of the world's population [19,48]. The rapid transformation in ecological services in higher altitude mountain regions may have a much larger impact on ecological stability [30,50]. The major urban ecosystems of the Himalaya biodiversity hotspot allow a shift in community diversity and evolutionary structure due to the largest elevational gradient in the world [4,43]. It is highly prone to various natural hazards and climate change consequences, including earthquakes, landslides, and flash floods, due to its complex geology and ecological fragility [24,52,59, 61]. The pattern of ecological services in the Himalayas is predominantly guided by the physiographic characteristics and long-term evolutionary processes [47,53]. The process of rapid population growth led to the haphazard and discrete nature of urban growth,

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Estimation of Sedimentation for a Harbour Located in a Bay by Different Methods

| Conference paper | First Online: 06 June 2023

| pp 309–323 | Cite this conference paper
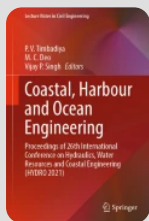
Coastal, Harbour and Ocean Engineering

(HYDRO 2021)

Om Nath Singh ✉, B. Gopikrishna, J. D. Agarwal & H. P. Singh

📖 Part of the book series: Lecture Notes in Civil Engineering ((LNCE, volume 321))

🖥 Included in the following conference series:
International Conference on Hydraulics, Water Resources and Coastal Engineering

👁 **141** Accesses

Abstract

The coastlines of islands are always under threat by various environmental agencies. Coastal changes do happen by a wide range of oceanic processes. Comprehensive understanding of the coastal processes regulated by coastal hydrodynamics and the consequent movement of sediments is vital to the formulation of coastal zones

Thermal Performance Evaluation of Indian Standard Solar Box Cooker (SBC) with Retrofitted Radiative Control

| Conference paper | First Online: 22 May 2023

| pp 803–809 | Cite this conference paper
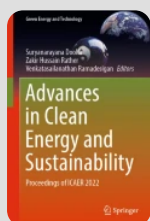
Advances in Clean Energy and Sustainability

(ICAER 2022)

Md. Rahbar Jamal ✉, S. K. Samdarshi, P. S. Panja, Sandip Kumar Maurya & Santosh Tigga

Part of the book series: Green Energy and Technology ((GREEN))

Included in the following conference series:
International Conference on Advances in Energy Research

Abstract

Among all cooking methods, solar cooking is pivotal to achieve the goals to clean and affordable cooking as the energy source is free and equitable in nature. Solar cookers of different types are available and its selection depends on the cost, performance and the nature of the food to be cooked. For boiling type cooking solar box cooker (SBC) is

Comparative Analysis of Performance Parameters of Hydrogen Fuel, Conventional Fuels and Hydrogen Enriched Fuels in an IC Engine

| Conference paper | First Online: 22 May 2023

| pp 519–528 | Cite this conference paper
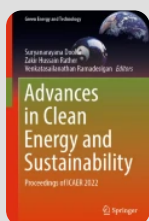
Advances in Clean Energy and Sustainability

(ICAER 2022)

Vinay Prakash Chaudhary ✉, D. B. Lata, Manish Kumar Singh & Saurav Kumar

📚 **Part of the book series:** Green Energy and Technology ((GREEN))

🖥 **Included in the following conference series:**
International Conference on Advances in Energy Research

👁 **383** Accesses

Abstract

Detection of COVID-19 using CoviNet and VGG-16 Models

Cite This

PDF

Sahebgoud Hanamantray Karaddi ; K. Srilakshmi ; Lakhan Dev Sharma ; Diksha Sharma ; Ram Sewak Singh   All Authors

Abstract

Document Sections

I. Introduction

II. Materials

III. Methodology

IV. Results and Discussion

V. Conclusion

Authors

Figures

References

Citations

Keywords

Metrics

Abstract:

The new coronavirus was a complete surprise that no one expected. It has become a pandemic, requiring extensive testing and challenging the health infrastructure and available resources. The standard diagnostic test is RT-PCR. However, the virus was a complete surprise that no one expected. It has become a pandemic, requiring extensive testing and challenging the health infrastructure and available resources. The standard diagnostic test is RT-PCR. However, the RTPCR test has a number of weaknesses, such as when it becomes difficult to obtain the required test kit in most countries, one still has to rely on one approach, which can lead to false-positive results. All these problems necessitate the development of other testing methods so that one is not limited to a single strategy. Chest x-rays, in addition to tests from RT-PCR, can be a useful way to assess the status and severity of COVID19. Once a person's chest x-ray is available, you will need to inquire about COVID-19 status. This requires a high degree of precision and expertise, neither of which is available. Therefore, one solution to this problem is to develop a COVID-19 detection system to help medical professionals make the final decision. Therefore, we proposed a deep learning model to detect COVID-19 from chest x-ray images. In this, we have used CoviNet and the VGG16 architecture to detect COVID-19 on chest X-ray images. This categorization of images achieved an average accuracy of 97.15% for detection of COVID-19 from chest x-ray images and 98% for three classes, namely Covid-19, pneumonia, and normal.

A Study on The Dimensions and Criteria For Sustainable Development of Clean Development Mechanism (CDM) Projects

Cite This

PDF
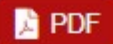
Liza Rani Satapathy ; Bateshwar Singh ; K. B. Singh   All Authors

Abstract

Document Sections

Abstract:

The globe finds it challenging to achieve simultaneous economic growth and emission reduction; however Clean Development Mechanism Projects can be a strategy to do so. Choosing the right criteria is crucial in determining whether CDM projects will contribute to sustainable development, particularly for developing countries. With the use of literature reviews and content analysis, this study aims to pinpoint the Sustainable Development dimensions, criteria, and indicators within the framework of CDM projects.

Post-Merger & Acquisition Financial Performance of Selected Indian Firms

Kriti Bhaswar Singh ; S. K. Singh ; Deepak Tulsiram Patil   All Authors

Abstract

Document Sections

I. Introduction

II. LITERATURE REVIEW

III. RESEARCH METHODOLOGY AND HYPOTHESIS

IV. DATA ANALYSIS AND TEST OF HYPOTHESES

IV. CONCLUSION

Authors

References

Keywords

Metrics

Abstract:
As a business restructuring tactic, mergers and acquisitions (M&A), has significantly drawn attention of practitioners as well as researchers around the world. Firms across different economies including the Indian firms have invested billions in M&A activities. Whilst corporate M&A are widely believed of as the primary method for growth and expansion, related research have shown that M&A can occur for a variety of other reasons. The majority of these studies have a market-based (also known as a stock market-based) approach and are accounting-based. In this research, we aim to determine if Indian mergers have been successful. Samples of twelve companies have been selected for the purpose of the study. We used average financial ratio data from the three years before (Pre-merger) and three years after (Post-merger) the merger to compare and test for differences using a paired "t" test. We conclude that profitability ratios have increased during the post-merger period compared to the pre-merger period. Further, solvency of the merged companies has deteriorated after mergers due to greater reliance on debt for financing merger deals.

Financial Inclusion of the Tribal Community of Jharkhand- a Pilot Study

Publisher: IEEE

Cite This

PDF

Samir Xavier Bhawnra ; K. B. Singh   All Authors

68
Full
Text Views

Abstract

Document Sections

I. Introduction

II. Literature Review

III. OBJECTIVE OF THE STUDY

IV. HYPOTHESES OF THE STUDY

V. RESEARCH METHODOLOGY

Show Full Outline ▾

Authors

References

Keywords

Metrics

Abstract:

The objective of the paper is to study the financial inclusion of the tribal community of Jharkhand in India. Since the introduction of No Frill Account (Basic Saving Bank Deposit Account) in 2005 and the launch of PMJDY in 2014, there has been a continuous growth in the number of population enrolling themselves with formal financial system in India. This national level drive has resulted in the growth of financial inclusion among the unbanked across India, and among the tribal community also. Ownership of a bank account with a formal banking system is the first and the fundamental step in financial inclusion. However, mere opening of a bank account does not serve the purpose of financial inclusion. The usage of the bank account is an imperative dimension of financial inclusion (Sarma, 2008,2010) [1]. Therefore, this paper attempts to explore the usage dimension of financial inclusion of the tribal community of Jharkhand. To study the usage dimension, different determining factors have been studied. Primary data from 55 respondents have been collected to study the usage purpose. The findings show that monthly income of the tribal community affects bank account ownership and selection of the nature of banking account. However, the same demographic factor - monthly income - has no relation with other activities of the use of bank account; e.g. purpose of Banking Services of the tribal community; Purpose of taking loan among the tribal customers; possession of ATM Card/Debit Card; confidence on banking services and mobile banking services.

Conference paper

Analyzing Deep Neural Network Algorithms for Recognition of Emotions Using Textual Data

| Conference paper | First Online: 16 May 2023

| pp 60–70 | Cite this conference paper

Key Digital Trends Shaping the Future of Information and Management Science

(ISMS 2022)

Pushpendra Kumar, Kanojia Sindhuben Babulal ✉, Dashrath Mahto & Zaviya Khurshid

Abstract

Evaluation of emotion and recognition from textual data is a new and important study in the Natural Language Processing (NLP) field that could provide useful information for

Study on Deep Learning Models for Human Pose Estimation and its Real Time Application

Cite This

PDF

Jyoti Jangade ; Kanojia Sindhuben Babulal   All Authors

Abstract

Document Sections

I. Introduction

II. Human Pose Estimation

III. Human Body Modeling

IV. Dataset

V. Deep Learning Models in HPE

Show Full Outline ▾

Authors

Figures

References

Citations

Keywords

Abstract:

In computer vision, human pose estimation details the posture of the person's body structure that can be Kinematic, Planer, and Volumetric in an image or video. However, pose detection is often critical to be driven by distinct human actions. Thus, this survey report analysis the recent progression of the bottom-up and top-down human pose evaluation models. This survey report focuses on 2D and 3D skeleton-based human pose detection from the captured Red Green Blue(RGB) images. We have condensed the performance of the recent pose recognition, tracking, and detection techniques that utilize pose estimation from colour images as captured and then exhibit room for much more refinement in this domain. In this paper, scrutinize the study of human pose estimation models like 2d and 3d HPE for identify human movements such as running, dancing, sport so on and recent computer vision-based advances. This study has included various methods for detecting in two and three dimensions. This paper summarises the deep learning models for HPE, dataset, and challenges.
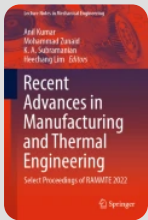
Home > Recent Advances in Manufacturing and Thermal Engineering > Conference paper

Kinetic Analysis of *Phoenix Dactylifera* and *Phyllanthus Emblica* Seeds Through Thermogravimetric Analyser: Determination of Activation Energy

| Conference paper | First Online: 22 March 2023

| pp 261–273 | Cite this conference paper

Recent Advances in Manufacturing and Thermal Engineering

(RAMMTE 2022)

Indra Mohan, Satya Prakash Pandey & Sachin Kumar ✉

👁 **277** Accesses

Abstract

Optimizing and Validating Performance of 40 Gbps Optical System

| Conference paper | First Online: 19 February 2023

| pp 131–140 | Cite this conference paper
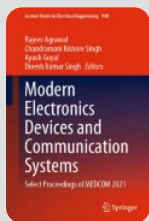
Modern Electronics Devices and Communication Systems

Shradha Gupta ✉, Shilpa Choudhary, Kanojia Sindhuben Babulal & Sanjeev Sharma

Abstract

The purpose of this paper is to optimize the performance of the RZ modulated 40 Gbps optical system by using RSM optimizer for pre- and post-compensation of dispersion. There are many input factors whose variation causes improvement of optical signals such as laser power, RZ duty cycle and EDFA gain (pre-and post-compensation), which were optimized to determine their effects on the signal characteristics. The output signal quality was characterized using noise power and Q-value. Using OPTSIM simulator a 40 Gbps optical network design and run over the 31 combinations as defined by RSM algorithm. These provide the optimized parameters. These optimized input parameters

Road Network Analysis of Major Destinations in Guwahati City Using GIS

| Conference paper | First Online: 19 September 2022

| pp 193–215 | Cite this conference paper

Proceedings of the Sixth International Conference of Transportation Research Group o...

(CTRG 2021)

Mayurakshi Hazarika ✉ & Amit Kumar Yadav

📖 **Part of the book series:** Lecture Notes in Civil Engineering ((LNCE, volume 271))

🎞 **Included in the following conference series:**
Conference of Transportation Research Group of India

👁 **249** Accesses

Abstract

The transportation system plays a prominent role in the urban spatial structure. It is the main social-economy operation of the city. Transport planning is a complex process
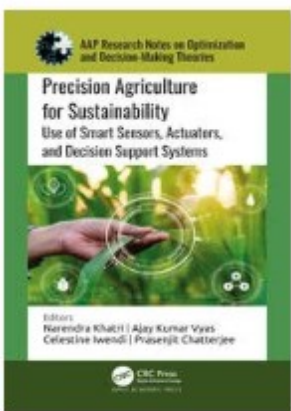
Understanding The Relationship Between Normalized Difference Vegetation Index And Meteorological Attribute Using Clustering Algorithm

By *Hemanta Medhi*, *Pramod Soni*, *Vikas Kumar Vidyarthi*, *Shikha Chourasiya*

Book   Precision Agriculture for Sustainability

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ABSTRACT

The vegetation index provides characteristics that can be related to the different meteorological attributes, soil attributes, and water quantity and quality of an area. These relationships between the vegetation index and the other variables would be beneficial in understanding the ecology of a region. Observed station data for meteorology, soil and water attributes are beneficial 72for such analysis but are sparse. However, with readily available satellite data this problem can be overcome, and they may be used in giving insight about the vegetation cover over the earth's surface. Thus, understanding the vegetation of a watershed would be easy and better managed. In this study, the normalized difference vegetation index (NDVI), derived from moderate resolution imaging spectrometer (MODIS) is used to study the vegetation pattern. A framework is

< Back

Chapter 4

Land Degradation and Its Impacts on Biodiversity and Ecosystem Services

Pawan Ekka, Subhashree Patra, Manjari Upreti, Gajendra Kumar, Amit Kumar, Purabi Saikia

Book Editor(s):Abhishek Raj, Manoj Kumar Jhariya, Arnab Banerjee, Sharad Nema, Kiran Bargali

Summary

Land degradation is a big challenge that has an impact on ecosystem integrity with reference to diminishing long-term ecological productivity, native biological diversity, and resilience. It is considered a major environmental issue around the world due to its adverse impacts on climate change, habitat and biodiversity loss, poverty, environmental hazards, and adaptive capacities. Human-induced processes including land use transformation, overexploitation of natural resources, population enhancement, economic development, human-induced climate change, ineffective laws, insecure tenure, and lack of agreements directly or indirectly cause land degradation. Around two-thirds of the carbon contained in both vegetation and soil has vanished due to land degradation since the 19 th century, adding considerably to global warming. Biodiversity is impacted by land use transformation primarily through habitat loss or modification, changes in species diversity and abundance, soil quality degradation, depletion of water resources, and overexploitation of endemic species. Weak policy and governance result in the dissuasion of sustainable management of land and the deprivation of previously sustainably governed areas. Various methods and techniques have been developed to conserve and maintain the sustainability of land resources through nature-based solutions, including sustainable land management (SLM), ecosystem-based perspective, conservation based on range and unit area, etc.

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Verburg , P. H. , Crossman , N. , Ellis , E. C. , Heinimann , A. , Hostert , P. , Mertz , O. , Nagendra , H. , Sikor , T. , Erb , K. H. , Golubiewski , N. , Grau , R. , Grove , M. , Konaté , S. , Meyfroidt , P. , Parker , D. C. , Chowdhury , R. R. , Shibata , H. , Thomson , A. & Zhen , L. , Land system science and sustainable development of the earth system: A global land project perspective . *Anthropocene* , **12** , 29 - 41 , 2015 .

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Cloud computing in education

By S. Singh, A. Singh, A. Singh

Book [Artificial Intelligence, Blockchain, Computing and Security Volume 1](#)

|	
Edition	1st Edition
First Published	2023
Imprint	CRC Press
Pages	5
eBook ISBN	9781003393580

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ABSTRACT

India has grown tremendously in Information Technology (IT) and IT-enabled services over the decade. Cloud technology is also witnessing rapid growth in India. This paper discusses the importance and use of cloud computing technology in education and explores the trend and growth of cloud computing in the higher education market. The move to cloud computing has provided educational institutions with several benefits, including improved student-institution collaboration, innovation and learning, educational outcomes, efficient supervision, information sharing, and student counselling brought additional benefits. Now leading institutions are trying to use cloud technology to gain a competitive advantage.

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Study of Driver Behavior in Overtaking Maneuvers on Undivided Road in Indian Context

| Conference paper | First Online: 29 October 2023

| pp 537–558 | Cite this conference paper
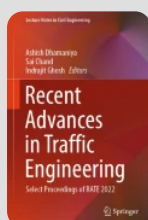
Recent Advances in Traffic Engineering

(RATE 2022)

Indrajeet Kumar ✉ & Amit Kumar Yadav

📚 **Part of the book series:** Lecture Notes in Civil Engineering ((LNCE, volume 377))

🗒 **Included in the following conference series:**
National Conference on Recent Advances in Traffic Engineering

Abstract

The most difficult and important maneuvers on undivided road is overtaking maneuvre. Fast moving vehicles overtake slow moving vehicles with facing incoming traffic from the opposite direction. Lateral movements of vehicle are influenced by various parameters like driver behavior, vehicle type and vehicle speed. Drivers of small vehicles like motorcycles have the flexibility to maintain closer safe distances from the vehicles in

Assessment of Sustainable Public Transportation Provisions in Himachal Pradesh, India

| Conference paper | First Online: 02 September 2023

| pp 243–250 | Cite this conference paper
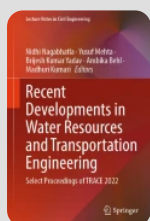
Recent Developments in Water Resources and Transportation Engineering

(TRACE 2022)

Arunava Poddar, Akhilesh Kumar ✉, Akhilesh Nautiyal & Amit Kumar Yadav

Abstract

With the increase in population in hilly areas, the importance of public transportation increases which requires appropriate management. Safe mobility of PT provides

A short commentary: Biological pre-treatment and its enhancement-is a primitive concept? 🛒

Sonam Kumari; Shweta Shah; Vivek Shit; Joginder Singh; Manoj Kumar ✉

➕ Author & Article Information

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This review provides an overview of some of the issues surrounding the existing implication of renewable energy technologies (RETs) and background rural knowledge to unfold the modern energy harvesting system. Owing the alarming call by nature about environmental pollution and continuous hike in petroleum prices, a better fuel option is still a mission worldwide.
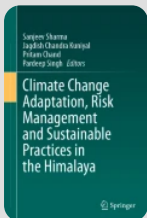
Topics

Energy technology, **Petroleum**, **Energy harvesting**, **Environmental pollution**, **Knowledge**, **Review**

Landslide Susceptibility Mapping of Tehri Reservoir Region Using Geospatial Approach

| Chapter | First Online: 11 March 2023

| pp 135–156 | Cite this chapter

Climate Change Adaptation, Risk Management and Sustainable Practices in the Himalaya

Gaurav Tripathi, Achala Shakya, Ritambhara Kumari Upadhyay, Suraj Kumar Singh, Shruti Kanga ✉ & Sandeep Kumar Pandey

Abstract

Uttarakhand is one of the most landslide-susceptible states because of its geographical setting, which consists of 86% of the Himalayan terrain. However, in recent years, landslides have increased dramatically due to the large number of settlements, farms, road buildings, and a wide variety of hydroelectric projects. Therefore, this is a need to study the landslides scrupulously at a regional scale to rein the future developmental planning models. In the current work, a comprehensive study has been undertaken for the assessment of landslide susceptibility zones using the weight of evidence (WOE) and risk assessment for the Tehri region, specifically around the Tehri reservoir. Landslides