
RESEARCH

MAY 2024

PUBLICATIONS



RESEARCH

PUBLICATIONS

MAY 2024

“ Research is creating new knowledge. ”

Neil Armstrong

“ If we knew what we were doing, it wouldn't be called research, would it? ”

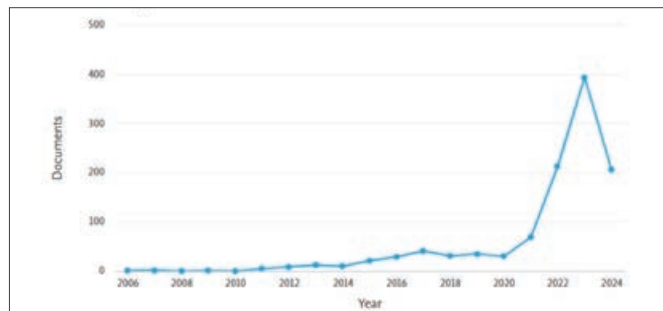
Albert Einstein

“ Research is formalized curiosity. It is poking and prying with a purpose. ”

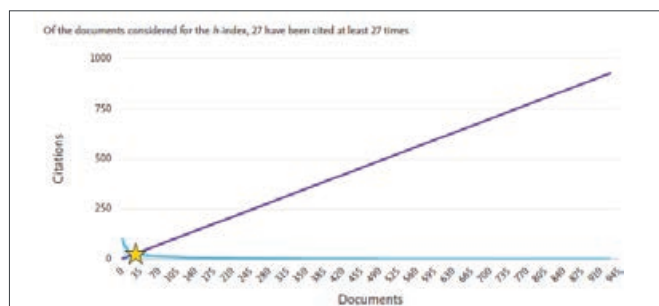
Zora Neale Hurston

1,109 Documents 410 Authors

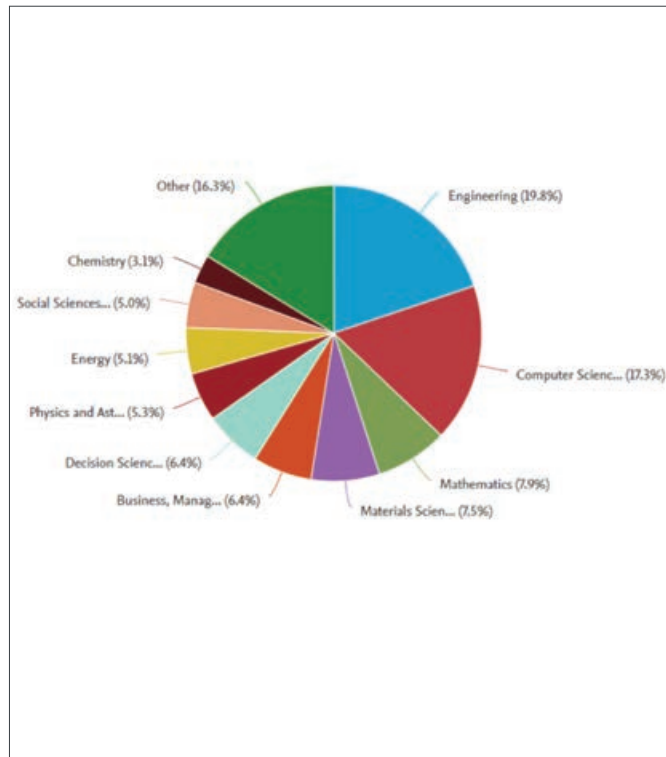
Documents by Year



These documents h-index



Documents by Subject Area



Summary

921

Scholarly Output

23.9%

All Open Access

389

Authors

3075

Citation Count

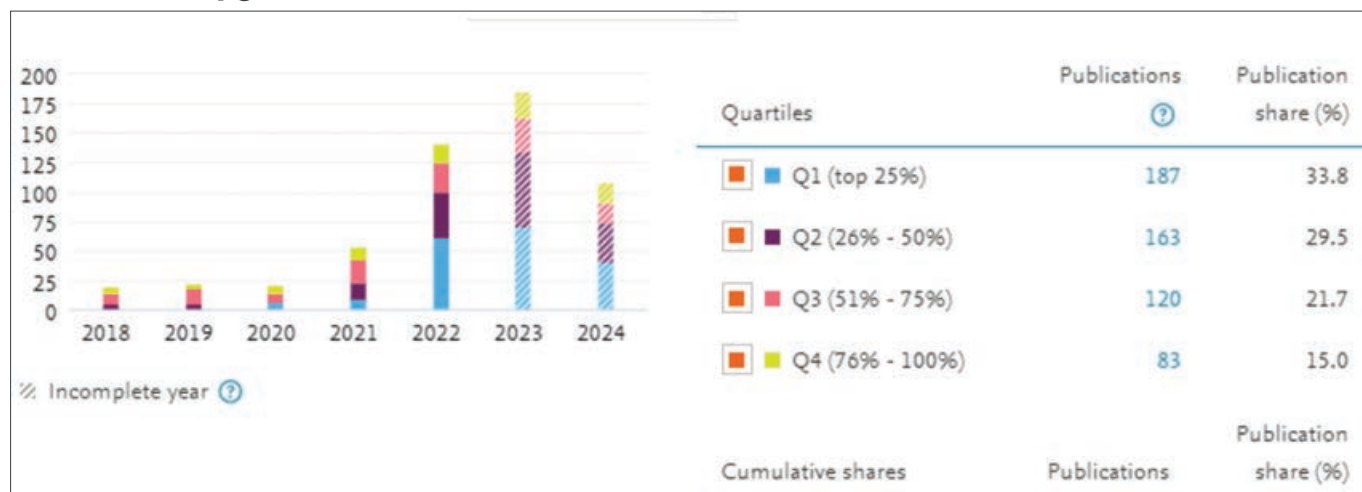
3.3

Citations per Publication

1.10

Field-Weighted Citation Impact

Publication by Journal Quartile



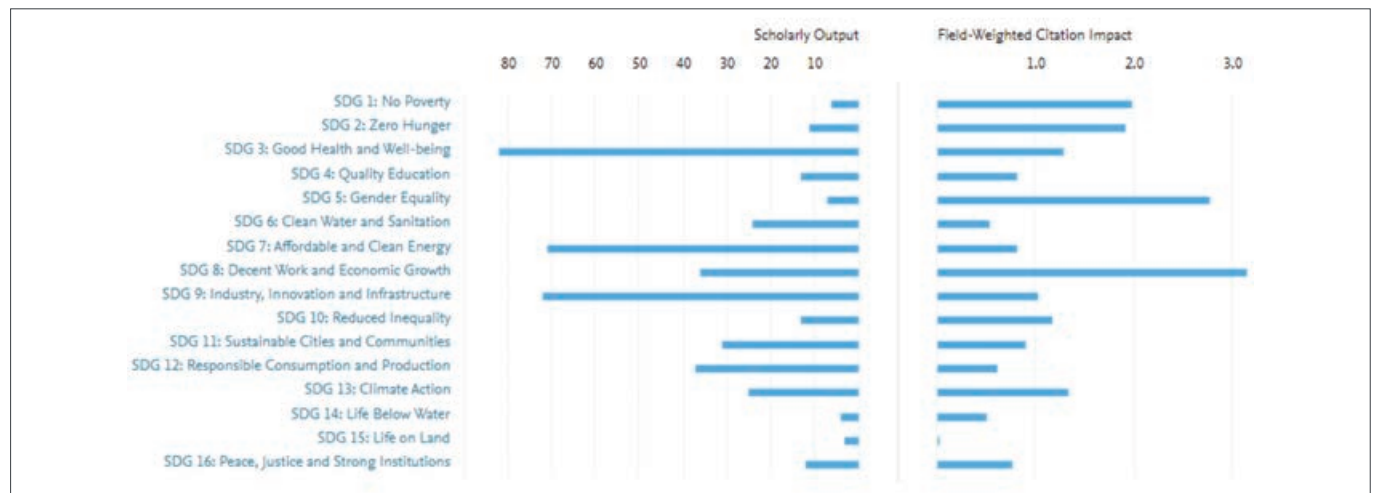
Geographical Collaboration Overall

International, national and institutional collaboration by Alliance University in the selected year range.



Metric	Scholarly Output	Citations	Citations per Publication	Field-Weighted Citation Impact	
International collaboration	34.2%	315	1,739	5.5	1.44
Only national collaboration	47.1%	434	1,064	2.5	1.05
Only institutional collaboration	10.4%	96	133	1.4	0.73
Single authorship (no collaboration)	8.2%	76	139	1.8	0.48

Publication by SDG



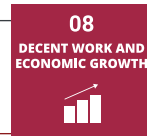
ABOUT ALLIANCE UNIVERSITY

Alliance University is a Private University established in Karnataka State by Act No.34 of year 2010 and is jointly recognized by the University Grants Commission (UGC), New Delhi, Bar Council of India (BCI) and the All-India Council for Technical Education (AICTE), New Delhi. Since its inception in 2010, Alliance University has been a forerunner in higher education, calling out to the new generation of scholars, engineers, scientists, artists, people in business, social reformers helping to shape and transform societies and communities through and beyond, around the world. Alliance University with a vibrant and picturesque campus in Bengaluru, one of the fastest growing cities in India, offers more than 20 undergraduate and postgraduate majors to approximately 7000 students of diverse backgrounds. Currently, that trailblazing spirit

makes Alliance University, one of the most sought-after universities in the world, featuring top-ranked academic programmes such as Alliance School of Business, Alliance College of Engineering and Design, Alliance School of Law, and Alliance Ascent College, and newly commenced Alliance School of Liberal Arts.

Alliance University is a leader in global education, with world-class infrastructure, state of the art laboratories, international visiting faculty, exchange programmes with leading universities in the US, UK, and European Union, and linkages with Research Labs across the world. Education at Alliance University is designed to inspire our students to become critical thinkers and to lead and change the world.





Quartile – Q1 | Percentile – 97th | Impact Factor – 7.4 | SDG

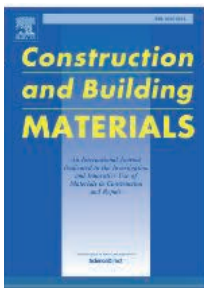


FLAME RETARDANCE BEHAVIOUR AND DEGRADATION OF PLANT-BASED NATURAL FIBER COMPOSITES – A COMPREHENSIVE REVIEW

Rajeshkumar L., Kumar P. S., Boonyasopon P., Rangappa S.M., Siengchin S.
Construction and Building Materials, 432,136552.

Rajesh Kumar L

Centre For Research
Alliance University, Bangalore, INDIA



Construction and Building Materials

Supports open access

12.4

CiteScore

7.4

Impact Factor

Abstract

In recent times, a pertinent effort has been made by researchers to seek for biodegradable and environmentally friendly reinforcements to manufacture composite-based products. Carbon footprints and emissions of greenhouse gases have been considerably minimized by the increased use of biomaterials lately. Consequentially, reinforcement of natural fibers in polymer matrices is widely preferred owing to the striking of a remarkable balance between cost and performance and ease of processing. However, these materials have their limitations in terms of poor fire resistance and retarded flammability behaviour which restricts the use of natural fiber polymer composites widely in industrial sectors. The end-of-life conditions favour the use of natural fibers as potential reinforcements. Besides physical, chemical, and mechanical properties, the thermal properties of the composites must be given equal importance as they widen the application background of natural

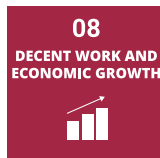
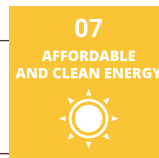
fiber polymer composites. Thermal properties are also important in structural applications which include the assessment of capability of a composite to transfer temperature from end to end, material behaviour, stability at elevated temperatures, and load-carrying capability at high temperatures. Degradation of composite materials is considered to be important during their service life as the composites will be subjected to various outdoor environmental conditions. All these parameters are important for any functional composite during its service life. After their use, the problem of disposal of these materials arises which ends up in various environmental hazards such as pollution and landfills. Hence, the assessment of biodegradability of green composites is also important which mostly happens with the action of microorganisms. Therefore, it could be deduced that the understanding of the flammability and degradation of biocomposites along with their testing methods is

important for developing biocomposites with better fire-resistant, thermal degradation, and biodegradation characteristics. Hence, this review focuses on the flame retardance behaviour, thermal stability, and

degradation of plant-based natural fiber polymer composites during and after their service life.

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Author keywords- Biodegradability; Flame retardance; Natural fiber composites; Thermal stability; Weathering



Quartile – SCOPUS

Percentile –

Impact Factor – 4

SDG



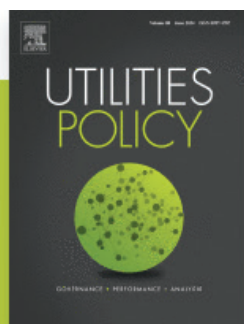
CONSUMER UPTAKE OF ENERGY-EFFICIENT APPLIANCES IN INDIA’S ONLINE MARKETPLACE: AN ELECTRONIC WORD-OF-MOUTH (EWOM) PROCESS MODEL

Dash, Raj^a; Bhattacharjee, Biplab^b

Utilities Policy, Volume 88 June 2024 Article number 101750

Dr. Raj Dash

Assistant Professor,
Alliance School of Business,
Alliance University, Bangalore, INDIA



Utilities Policy

Supports open access

6.3

CiteScore

4

Impact Factor

Abstract

Improving the energy efficiency of household appliances is a global strategy for mitigating the effects of climate change and ensuring energy security. Consumers, however, often underinvest in energy efficiency. This research draws on the theory of diffusion of innovation to develop an electronic word-of-mouth (eWOM) process model of energy-efficiency

uptake in online marketplaces. Model estimation, based on room air conditioners’ data from a large online marketplace in India, uncovers underexploited eWOM pathways to accelerate the diffusion of energy efficiency innovations for the benefit of consumers and the health of the planet.

© 2024 Elsevier Ltd

Author keywords- Diffusion of innovation; Energy-efficiency gap; eWOM; Online marketplace; Online social influence; Sustainability

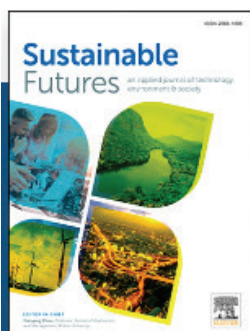


FORTIFYING UZBEKISTAN’S INTEGRITY LANDSCAPE: HARNESSING INDIA’S TECH-DRIVEN ANTI-CORRUPTION STRATEGIES

Thommandru, Abhishek^a, Maratovich, Fazilov Farkhodb Saparovna, Niyozova Salomat b
Sustainable Futures Open Access Volume 7, June 2024 Article number 100206 Journal ISSN 26661888 DOI 10.1016/j.sfr.2024.100206

Dr. Abhishek Thommandru

Assistant Professor,
 Alliance School of Law,
 Alliance University, Bangalore, INDIA



Sustainable Futures

Open access

6.5

CiteScore

5.5

Impact Factor

Abstract

Corruption poses significant challenges to sustainable development and social justice in Uzbekistan. This paper explores how Uzbekistan can strengthen its anti-corruption framework by leveraging emerging technologies and drawing lessons from India’s experience in using information and communication technology (ICT) to combat corruption. The study employs a qualitative research methodology, analysing data from government reports, case studies, and expert interviews to identify specific areas where Uzbekistan can learn from India’s successes and challenges in applying ICT solutions. The findings highlight several key ways ICT can bolster anti-corruption efforts in Uzbekistan, such as increasing transparency through e-governance platforms, improving accountability

via digital monitoring systems, and enabling citizen participation with online reporting tools. The paper provides concrete examples and data from India demonstrating how technologies like biometrics, blockchain, and data analytics have helped detect fraud, streamline bureaucratic processes, and empower citizens to report corruption. However, the research also reveals critical legal, institutional and cultural barriers Uzbekistan must address to effectively implement these tech-based approaches, such as outdated regulations, lack of technical expertise, and public distrust. Comparing India and Uzbekistan’s contexts, the paper offers tailored recommendations for how Uzbekistan can adapt India’s ICT models to overcome its unique constraints. The study concludes

that while technology is not a panacea, strategically integrating ICT into Uzbekistan’s anti-corruption arsenal – with insights from India’s experience – can be a powerful tool to promote good governance, curb corruption, and ultimately advance social justice

for citizens. More research is needed to assess the long-term impacts and scalability of specific ICT interventions.

© 2024 The Author(s)

Author keywords- Accountability; Anti-corruption; Good governance; Information and Communication Technology (ICT); Transparency



SUSTAINABLE DAIRY SECTOR OF AN EMERGING ECONOMY: AN EMPIRICAL QUEST BASED ON INDIA

Sarkar, Avijit^a; **Gupta, Hemant^b** Dutta, Avijan^c

Agricultural Systems Volume 218 June 2024 Article number 103970

Dr. Hemant Gupta

Ph.D. in Management,
Assistant Professor,
National Institute of Technology Durgapur



Agricultural Systems

Supports open access

11.9
CiteScore

6.6
Impact Factor

Abstract

CONTEXT: The dairy sector has been poised for fierce competitiveness due to the commercialization of the dairy sector and the presence of a global market size of 893 billion dollars. It has received a new dimension with the challenge of environmental sustainability.

OBJECTIVE: Considering all these challenges, the present research paper studies the major growth factors and the sustainable approach to dairy development in an emerging economy like India. **METHODS:** Fifteen major dairy-developed states of India have contributed 90% of the milk production of the country examined from 2001 to 2019. The significance of key growth factors for dairy farming and the dairy value chain is

assessed. The opportunity for sustainable dairying is examined. **RESULTS AND CONCLUSION:** The authors have found that the growth factors of dairy farming and dairy value chain are significant by 1% through the fixed effect (FE) model and random effect (RE) model respectively. Indian dairy farming practices and their approach create optimism about environmental sustainability. **SIGNIFICANCE:** The present study has observed a series of operational activities that are conducive to the triple bottom approach. With that, this study has mentioned strategies that can steer growth momentum and support sustainable Indian dairy development in the coming times.

Author keywords- Dairy development; Dairy industry; Dairy value-chain; Milk; Panel data; Sustainability



STRATEGIC SUSTAINABILITY INVESTIGATION TOWARDS RESILIENT SUPPLY CHAINS POST-PANDEMIC COVID-19

Kumar, Sunil^a; Sharma, Ridhima^b; Malik, Firdous Ahmad^c

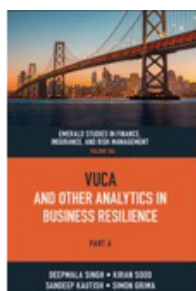
VUCA and Other Analytics in Business Resilience, Part B Pages 113 - 125 13 May 2024

Dr. Sunil Kumar

Ph.D. in Economics,

Head of Department of Economics & Deputy Registrar (E&E),

Sambalpur University



VUCA and Other Analytics in Business Resilience, Part A

Subject: Accounting & finance > Financial risk/company failure > Risk management/analysis

Synopsis

This volume brings together specialists from different disciplines and continents to discuss descriptive/diagnostic, predictive, and prescriptive analytics tools and how they might be used to investigate 'black swan' occurrences like the COVID-19-related worldwide catastrophe and the ramifications ...

[Read more](#)

[Table of contents \(15 chapters\)](#)

Abstract

Introduction: This study investigates the COVID-19 pandemic's effects on the sustainability of the supply chain. It investigates how modern supply networks and procedures were equipped for such a catastrophe, and the pandemic's effects on the environment, highlighting the significance of studying resilience and sustainability concurrently. **Purpose:** The study acknowledges the importance of environmental sustainability for businesses and the need to examine trends in organizational, customer, policy, and distribution networks. **Need for the Study:** The COVID-19 pandemic has significantly impacted supply chains. This study aims to provide insight into the long-term repercussions of the crisis and the importance of incorporating environmental considerations. **Methodology:** The study uses a mixed-methods approach to evaluate the

effects of the COVID-19 pandemic on supply networks and environmental sustainability indices. Data from industry reports, governmental publications, polls, and qualitative research techniques have been gathered. **Findings:** The results of this study advance our understanding of how to preserve supply chains in the wake of the COVID-19 pandemic. It highlights the need for enhanced resilience and sustainability measures, expose the flaws and weaknesses of contemporary supply networks, and uncover developing patterns and tactics in customer behaviour, policy frameworks, distribution networks, and supply chain management. **Practical Implications:** The COVID-19 pandemic has provided businesses, decision makers, and researchers with guidance on handling its potential and challenges increasing the supply chain's resistance to future

interruptions, incorporating environmentally friendly practices, developing policies to support resilient and sustainable supply chains, adapting to changing consumer tastes, increasing effectiveness, and

minimising the environmental impact of distribution networks.

© 2024 by Sunil Kumar, Ridhima Sharma and Firdous Ahmad Malik. All rights reserved.

Author keywords- Business; COVID-19; Global; Innovation; Market; Networks; Resilience; Supply chain management; Sustainability

Quartile – Q2

Percentile – 66th

Impact Factor – 2.2

SDG



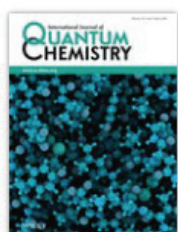
CHEMICAL APPLICABILITY AND CURVILINEAR REGRESSION MODELS OF VERTEX-DEGREE-BASED TOPOLOGICAL INDEX: ELLIPTIC SOMBOR INDEX

Shanmukha M.C.^a; **Usha A.**^b Kulli V.R.^c; Shilpa K.C.^d

International Journal of Quantum Chemistry Volume 124, Issue 95 May 2024 Article number e27376

Dr. Usha Arcot

Post Doc Fellow in Applied Mathematics,
Professor,
Srinivas University



International Journal of Quantum Chemistry: Volume 124, Issue 9

May 5, 2024

Abstract

Chemical graph theory facilitates different tools that have significant applications in drug design and development. Recently Gutman et al., introduced a novel vertex-degree-based topological index called elliptic Sombor index and its application through geometric approach. This article focuses on chemical applicability of elliptic Sombor index through

regression models using 22 benzenoid hydrocarbons. In this process, the chemical applicability of elliptic Sombor index with various physicochemical properties of benzenoid hydrocarbons through curvilinear regression models is carried out. The data of the statistical analysis shows that elliptic Sombor index is potential predictive index for the property polarizability.



INITIAL COEFFICIENT BOUNDS ANALYSIS FOR NOVEL SUBCLASSES OF BI-UNIVALENT FUNCTIONS LINKED WITH LUCAS-BALANCING POLYNOMIALS

Swamy, Sondekola Rudra^a.; Breaz, Daniel^b.; Venugopal, Kala^a **Kempegowda, Mamatha Paduvalapattana^c**

Mathematics Volume 12, Issue 9 May 2024 Article number 1325

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Alliance School of Applied Mathematics,
Alliance University, Bangalore, INDIA



Cover Story (view full-size image): The problem of finding the metric dimension of circulant graphs with t generators $1, 2, \dots, t$ (and their inverses) has been extensively studied. The problem is solved for $t = 2, 3, 4$, and some exact values and bounds are known also for $t = 5$. We solve all the open cases for $t = 5$. [View this paper](#)

Abstract

We investigate some subclasses of regular and bi-univalent functions in the open unit disk that are associated with Lucas-Balancing polynomials in this work. For functions that belong to these subclasses, we obtain upper bounds on their initial coefficients. The

Fekete–Szegő problem is also discussed. Along with presenting some new results, we also explore pertinent connections to earlier findings.

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Author keywords- bi-univalent functions; Lucas-balancing polynomials; regular functions; subordination



COLOCASIA ESCULENTA STEMS FOR THE ISOLATION OF CELLULOSE NANOFIBERS: A CHLORINE-FREE METHOD FOR THE BIOMASS CONVERSION

Midhun Dominic C.D., Maheswary S., Neenu K.V., Sajadi S.M., dos Santos Rosa D., Sabura Begum P.M., Mathew M., Ajithkumar T.G., **Parameswaranpillai J.**, George T.S., Resmi V.C., Ilyas R.A., Badawi M.

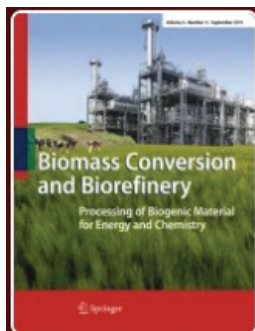
Biomass Conversion and Biorefinery 149, 10305-10318

Dr. Jyotishkumar Parameswaranpillai

Associate Professor,

Department of Sciences,

Alliance University, Bangalore, INDIA



Biomass Conversion and Biorefinery

Processing of Biogenic Material for Energy and Chemistry

Publishing model

Hybrid

Abstract

The reuse of waste products is the green key to sustainability. The extraction of cellulose nanofibers from *Colocasia esculenta* stems is presented in the paper. The study proved that the waste biomass could be effectively re-engineered into highly valued cellulose nanofibers (CNFs). Cellulose nanofibers were extracted via a chemo-mechanical route. The pre-treatments included mild alkali hydrolysis (2% NaOH) and chlorine-free bleaching (peroxide bleaching in an alkaline medium). Cellulose I structure was confirmed using ¹³C solid-state nuclear magnetic resonance spectroscopy and X-ray diffraction analysis. The elemental analysis of CNFs detected the elements, carbon and oxygen. The CNFs had a crystallinity and transmittance of 71.72% and 60%, respectively.

Microscopic studies verified the elimination of non-cellulosic components and the fibrous nature of CNFs. Moreover, the fiber diameter of CNFs was 20–40 nm. Thermal analysis revealed good thermal stability of 335.8 °C (T₅₀) for nanofibers. Long-term aids are numerous in eco-friendly technology. Developing an eco-design will support zero waste ideals, lowers carbon dioxide emissions, and encourages a circular economy. Owing to the merits of natural fibers, they can be adopted in various sectors including packaging, automobile, aerospace, electronics, biomedical, construction, and furniture. Graphical abstract: (Figure presented.).

© The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2022.

Author keywords- Acid hydrolysis; Cellulose nanofibers; *Colocasia esculenta* stems; High crystallinity

Quartile – Q3

Percentile – NA

Impact Factor –

SDG

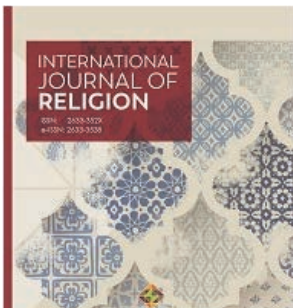


DENOISING OF DIGITAL IMAGES USING SPATIAL DOMAIN EDGE DETECTION APPROACH

Neole B., Pinjarkar L., **Patni J.C.**, Vidyabhanu A., Malpani A., Dudhe O.
International Journal of Religion, 5, 6, 298-307

Dr. Jagdish Chandra Patni

Professor,
Alliance College of Engineering and Design,
Alliance University, Bangalore, INDIA



The journal is a peer-reviewed, international, and interdisciplinary journal publishing research articles and significant contributions to social sciences, humanities, and educational sciences. This includes Arts and Humanities (Multidisciplinary), Social Sciences (Multidisciplinary) Religion and Sharia, History, Cultural Studies, Sociology, Political Science and Law, Education, Geography (Multidisciplinary), Fine Arts (Multidisciplinary), Communication and media, English as a Foreign Language (TESOL, EFL, ESP), Linguistics and Language, Psychology, Urban Studies, Planning and Development, Sport sciences (Multidisciplinary), Management, Administration,

Abstract

Better results can be produced by the Hybridization of the Wavelet-based image denoising technique and sparse representation of edges. A novel method for spatial domain edge identification that produces a denoised image that has been tainted by additive white Gaussian noise without sacrificing the image's detail information. By combining bivariate shrinkage and local profile edge detection, a denoised image is produced. In this paper, the hybridization method is proposed

by modifying the existing Wavelet Transform for image denoising leading to an increase in the PSNR and SSIM as compared to that given by existing Wavelet denoising techniques, maintaining the visual quality of an image. To modify the wavelet coefficients Bivariate Wavelet Shrinkage is used. The quality assessment is evaluated in terms of SSIM value and PSNR value. © 2024, Transnational Press London Ltd. All rights reserved.

Author keywords- Bivariate Wavelet Shrinkage; Discrete Wavelet Transform; PSNR; Spatial Domain; SSIM

Quartile – Q3

Percentile – NA

Impact Factor –

SDG

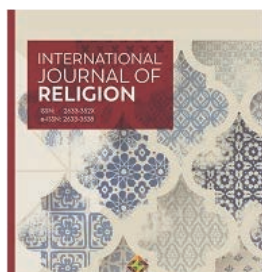


FORECASTING STELLAR XLM PRICES: INSIGHTS FROM ARIMA ANALYSIS

Kumar A., Sharma N., Gurna K.K., Anand A., **Patni J.C.**, Pinjarkar L.
International Journal of Religion 5,6, 273-288.

Dr. Jagdish Chandra Patni

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The journal is a peer-reviewed, international, and interdisciplinary journal publishing research articles and significant contributions to social sciences, humanities, and educational sciences. This includes Arts and Humanities (Multidisciplinary), Social Sciences (Multidisciplinary) Religion and Sharia, History, Cultural Studies, Sociology, Political Science and Law, Education, Geography (Multidisciplinary), Fine Arts (Multidisciplinary), Communication and media, English as a Foreign Language (TESOL, EFL, ESP), Linguistics and Language, Psychology, Urban Studies, Planning and Development, Sport sciences (Multidisciplinary), Management, Administration,

Abstract

The given research is aimed at solving the urgent problem of verifiable methods of forecasting cryptocurrency trading, with a preset focus on Stellar (XLM). Nevertheless, cryptocurrency forecasting is becoming more and more popular and it is still the case that there is a deficiency of research devoted to the use of the most advanced models to Stellar XLM price data. In many instances, the existing studies may pay less attention to the specific features of this cryptocurrency, hence creating a gap between our knowledge and understanding of how its prices fluctuate. Our experimental approach will investigate what accuracy forecasting models, especially the ARIMA model, can come up with by predicting the price of Stellar XLM. The purpose of this research is to experiment with a dataset for several years to know the workability of theoretical results on the forecasting models of Stellar XLM cryptocurrency.

Our experimental research evidenced the acceptable price accuracy when forecasting Stellar XLM prices. Regarding the volume data, our metrics are a MAPE (Mean Absolute Percentage Error) of 16.82% and MSE (Mean Squared Error) of 7.41.10⁻¹⁵ and Accuracyman (Accuracy) of 83.18%. On the other hand, the data with very high data recorded the best performance, with a MAPE of 4.26%, MSE = 0.00025, and Accuracy of 95.74%. This finding again evinces that applying the more advanced models of forecasting and choosing appropriate data sources is key in a good Stellar XLM forecast. Thereby this study contributes to filling the research gaps and by administrative tools providing insights into the practical use of forecasting models, it guides stakeholders having to cope with the difficulties of crypto-currency markets.

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Author keywords- ARIMA analysis; Cryptocurrency; Exploratory Data Analysis; Interquartile Range; Stellar XLM



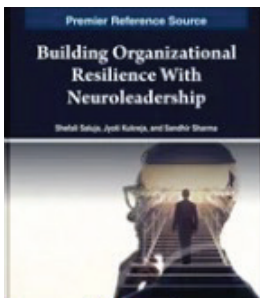
A STUDY ON OVERCOMING COGNITIVE BIASES IN LEADERSHIP DECISION-MAKING

Mohanty S., Sahoo S.K., **Sharma I.**, Panigrahi A., Bosu L.

Building Organizational Resilience With Neuroleadership 159-182.

Dr. Indu Sharma

Assistant Professor & Blended Learning Coordinator (FMS),
Alliance School of Business,
Alliance University, Bangalore, INDIA



Building Organizational Resilience With Neuroleadership

Shefali Saluja, Jyoti Kukreja, Sandhir Sharma

Release Date: April, 2024 | Copyright © 2024 | Pages: 352

DOI: 10.4018/979-8-3693-1785-3

ISBN13: 9798369317853 | ISBN13 Softcover: 9798369345184 | EISBN13: 9798369317860

Abstract

This study attempts to recognize, investigate, and showcase a research paradigm of cognitive biases impacting leadership decision-making. A questionnaire was systematically framed and distributed among leaders of the Indian corporate sector, and 400 proper responses were accepted at the end. The study utilizes structure equation modelling and partial-least square method (SEM-PLS) to examine the impact of cognitive biases on the leadership decision-making process. It finally suggests various ways to overcome the most prominent biases found in the study. Overconfidence

and optimism bias have the largest influence on the leadership decisions of corporate leaders followed by representativeness and hindsight bias. Uniqueness and availability bias had the least impact on the participants and their decisions. The study will contribute to academicians, scholars, analysts, practitioners, policymakers, and firms to make feasible leadership decisions for the cognitive biases considered in it. The impact of the factors on leaders' decision-making process will vary with region and sample size.

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Quartile – SCOPUS | Percentile – NA | Impact Factor – NA | SDG



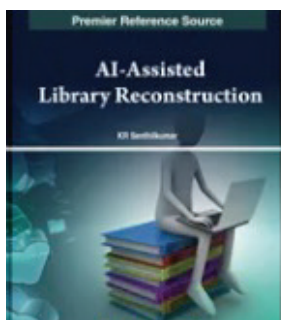
HISTORICAL OVERVIEW OF AI ADOPTION IN LIBRARIES

Jayavadivel R., Arunachalam M., Nagarajan G., Shankar B.P., Viji C., Rajkumar N., Senthilkumar K.R.

AI-Assisted Library Reconstruction 267-289

Dr. Jayavadivel.R

Associate Professor,
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AI-Assisted Library Reconstruction

K.R. Senthilkumar

Release Date: April, 2024 | Copyright: © 2024 | Pages: 363

DOI: 10.4018/979-8-3693-2782-1

ISBN13: 9798369327821 | ISBN13 Softcover: 9798369344842 | EISBN13: 9798369327838

Abstract

The objectives of this study are to attract attention to the ethical dimensions related to those technological improvements and propose tips for accountable AI integration. Moreover, the research identifies key challenges faced by libraries at some point in numerous stages of AI adoption, which include financial constraints, technological obstacles, and the need for continuous staff training. It additionally sheds light on the function of professional groups, policymakers, and the wider statistics community in shaping the

trajectory of AI integration in libraries. In the end, this comprehensive historical assessment contributes to the growing body of expertise on the intersection of AI and libraries. Through synthesizing historical trends and training, the paper affords valuable insights for librarians, researchers, and policymakers, facilitating a deeper knowledge of the dynamic relationship between libraries and AI technologies.

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Quartile – SCOPUS | Percentile – NA | Impact Factor – NA | SDG

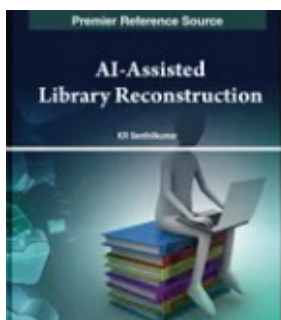


ANTICIPATED REQUIREMENTS AND EXPECTATIONS IN THE DIGITAL LIBRARY

Rajkumar N., Tabassum H., Muthulingam S., Mohanraj A., Viji C., Kumar N., Senthilkumar K.R.
AI-Assisted Library Reconstruction 1-20

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AI-Assisted Library Reconstruction

K.R. Senthilkumar

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Abstract

As society transitions into the digital era, the anticipated requirements and expectations placed on various sectors undergo profound transformations. This proposed study explores the shifting landscape, identifying key demands and expectations across various domains and highlighting the requirement for adaptability and innovation. The digital era has directed transformative changes, redefining the landscape of libraries into dynamic digital repositories. Anticipating the future requirements and expectations

in this evolving domain is imperative for effectively catering to user needs. The term ‘digital library,’ often referred to as a ‘digital repository,’ is crucial in contemporary information. The process of transforming a digital repository into an institutional repository (IR) is of dominant importance. The variations observed in institutional repositories are designed to align with users’ demands and expectations for digital information and services.

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Quartile – SCOPUS

Percentile –

Impact Factor –

SDG



INTELLIGENT LIBRARY MANAGEMENT USING RADIO FREQUENCY IDENTIFICATION

Viji C., Najmusher H., Rajkumar N., Mohanraj A., Nachiappan B., Neelakandan C., Jagajeevan R.

AI-Assisted Library Reconstruction 126-143

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AI-Assisted Library Reconstruction

K.R. Senthilkumar

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Abstract

Books have liberated more people than all wars put together. This stresses the importance of libraries as centers of knowledge. In spite of this, many libraries face several issues as they only have handwork operations like filing and locating books. The library management system the authors recommend works by affixing RFID tags on every single book, which are read in combination with a user-friendly interface for managing resources. Automation is able to make libraries easier and more secure in

terms of information. This local server comes with a bundled hardware and software system capable of guaranteeing superiority at every step thus offering heightened security for sensitive data. Librarian is being examined in this research on the role that radiometric identification of frequency RFID assists the practice, and highlights important advantages compared with old inventory control methods like checking-in checking-out or handwritten catalogues.

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EDUCATIONAL TECHNOLOGY AND LIBRARIES SUPPORTING ONLINE LEARNING

Kumar N., Antoniraj S., Jayanthi S., Mirdula S., Selvaraj S., **Rajkumar N.**, Senthilkumar K.R.

AI-Assisted Library Reconstruction, 209-237.

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AI-Assisted Library Reconstruction

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Abstract

In the dynamic landscape of contemporary education, the integration of educational technology (EdTech) and the evolving role of libraries stand as pivotal forces in shaping and supporting online learning experiences. This chapter delves into the intricate synergy between educational technology and libraries, exploring their collaborative potential in fostering enhanced online learning environments. The introduction sets the stage by elucidating the background and context, emphasizing the paramount importance of EdTech in the digital age, and outlining the critical role libraries play in facilitating online learning. The subsequent sections dissect the multifaceted dimensions of educational technology in online learning, elucidating the diverse array of technological tools, their integration into teaching and learning processes, and their profound impact on student engagement and academic outcomes. As the narrative unfolds, attention shifts to the metamorphosis of libraries into supportive hubs for online learning, tracing the evolution of their role in the digital era. In the dynamic landscape of

contemporary education, the integration of educational technology (EdTech) and the evolving role of libraries stand as pivotal forces in shaping and supporting online learning experiences. This chapter delves into the intricate synergy between educational technology and libraries, exploring their collaborative potential in fostering enhanced online learning environments. The introduction sets the stage by elucidating the background and context, emphasizing the paramount importance of EdTech in the digital age, and outlining the critical role libraries play in facilitating online learning. The subsequent sections dissect the multifaceted dimensions of educational technology in online learning, elucidating the diverse array of technological tools, their integration into teaching and learning processes, and their profound impact on student engagement and academic outcomes. As the narrative unfolds, attention shifts to the metamorphosis of libraries into supportive hubs for online learning, tracing the evolution of their role in the digital era.

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Quartile – SCOPUS

Percentile – Nil

Impact Factor – Nil

SDG



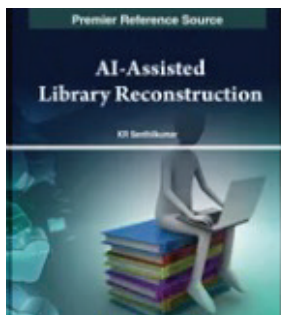
PRIVACY AND SECURITY IN DIGITAL LIBRARIES

Mohanraj A., Viji C., Varadarajan M.N., Kalpana C., Shankar B., Jayavadeivel R.,
Rajkumar N., Jagajeevan R.

AI-Assisted Library Reconstruction 104-125.

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AI-Assisted Library Reconstruction

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Abstract

Digital libraries, as dynamic repositories of diverse and expansive information, encounter significant privacy and security concerns that necessitate careful attention. The intersection of vast datasets, user interactions, and the imperative to maintain information accessibility amplifies the complexity of safeguarding privacy and ensuring robust security measures. Privacy concerns within digital libraries revolve around the collection and handling of user data. As users engage with the digital

library, their personal information, search patterns, and preferences become integral components of the library's dataset. Striking a balance between utilizing this data for personalized services and respecting user privacy requires a delicate approach. Users rightfully demand transparency regarding data practices, the purpose of data collection, and assurance that their information is handled responsibly.

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Quartile – Q4

Percentile – 5th

Impact Factor –

SDG



SMARTPHONE SHACKLES: UNRAVELING THE MENTAL TOLL OF DEVICE DEPENDENCY ON INDIAN UNDERGRADUATES

Verma A., **Mukherjee S.**, Neogi S., Chanda A., Nag A.
Community Practitioner, 21, 4, 1064-1071

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Assistant Professor,
 Alliance School of Business,
 Alliance University, Bangalore, INDIA

**COMMUNITY
 PRACTITIONER**
 NEWS, VIEWS AND ANALYSIS FOR
 COMMUNITY PRACTITIONERS

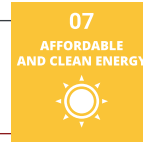
Abstract

The research delves into exploring the correlation between excessive smartphone utilization and its effects on mental well-being, social interactions, cognitive abilities, and academic performance. It also examines the cultural and situational elements influencing smartphone dependency among Indian college students. A thorough review of existing literature indicates that over-reliance on smartphones leads to heightened levels of stress, anxiety, depression, and diminished life satisfaction. Moreover, prolonged smartphone use diminishes face-to-face communication, empathy, and fosters feelings of social seclusion. Statistical analyses, including one-way ANOVA and multi-linear regression (MLR), were employed to scrutinize the association between Technical and Non-Technical Universities. A survey involving 1051 students

revealed that a significant portion exhibited problematic smartphone usage to varying degrees. The primary motive behind their smartphone usage was accessing social networking apps, predominantly Instagram. Interestingly, the students' field of study (science-based vs. Management) did not significantly influence their susceptibility to addictive behavior patterns. The study's findings offer valuable insights for university administrators, aiding them in identifying specific cohorts of undergraduate students prone to addictive smartphone habits. This knowledge can be pivotal in devising targeted interventions tailored to address the unique needs of these high-risk groups, with the aim of mitigating their addictive smartphone behaviors.

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Author keywords- Educational Context; India; Online Social Networking; Smartphone Dependency Measurement



Quartile – SCOPUS | Percentile – | Impact Factor – | SDG



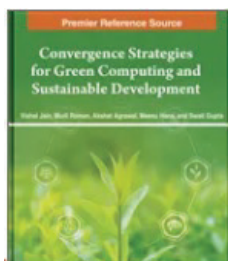
GREEN TECHNOLOGIES, REDUCING CARBON FOOTPRINTS, AND MAXIMIZING ENERGY EFFICIENCY WITH EMERGING INNOVATIONS: GREEN COMPUTING

Pitchai R., Tiwari S., **Viji C.**, Kistan A., Puviarasi R., Gokul S.

Convergence Strategies for Green Computing and Sustainable Development

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Convergence Strategies for Green Computing and Sustainable Development

Vishal Jain, Murali Raman, Akshat Agrawal, Meenu Hans, Swati Gupta

Release Date: April, 2024 | Copyright: © 2024 | Pages: 332

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Abstract

This chapter explores the complex issue of sustainable computing, focusing on its environmental implications. It outlines the principles of green computing, the carbon footprint associated with technology, and the role of data centers in minimizing it. The chapter also highlights the importance of energy efficiency in computing, highlighting the growing energy consumption in IT and outlines strategies for achieving it. It also discusses the role of emerging technologies like renewable energy, IoT, smart grids,

quantum computing, and sustainable algorithms in promoting sustainability. The chapter also highlights the practices, virtualization, cloud computing, and power management software. The chapter discusses the practical application of sustainable computing in organizations, highlighting challenges, ethical considerations, and a roadmap for the future of sustainable computing, enriched with case studies.
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Quartile – Q2

Percentile – 50th

Impact Factor – 2.8

SDG

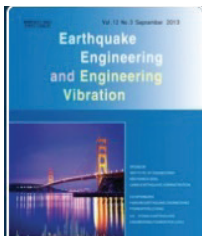


IDENTIFICATION OF EARTHQUAKE INDUCED STRUCTURAL DAMAGE BASED ON SYNCHROEXTRACTING TRANSFORM

Roshan K., **Gaurav K.**, Wei Z., Yadav A.R., Gang Y., Kumar J., Amponsah E.
Earthquake Engineering and Engineering Vibration

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Earthquake Engineering and Engineering Vibration

Publishing model
Hybrid

Abstract

Several popular time-frequency techniques, including the Wigner-Ville distribution, smoothed pseudo-Wigner-Ville distribution, wavelet transform, synchrosqueezing transform, Hilbert-Huang transform, and Gabor-Wigner transform, are investigated to determine how well they can identify damage to structures. In this work, a synchroextracting transform (SET) based on the short-time Fourier transform is proposed for estimating post-earthquake structural damage. The performance of SET for artificially generated signals and actual earthquake

signals is examined with existing methods. Amongst other tested techniques, SET improves frequency resolution to a great extent by lowering the influence of smearing along the time-frequency plane. Hence, interpretation and readability with the proposed method are improved, and small changes in the time-varying frequency characteristics of the damaged buildings are easily detected through the SET method.

© Institute of Engineering Mechanics, China Earthquake Administration 2024.

Author keywords- cross-term; damage detection; earthquake signal; synchroextracting transform; time-frequency



BIOACTIVE CELLULOSE NANOPAPERS IMPREGNATED WITH CINNAMON ESSENTIAL OIL FOR SUSTAINABLE ANTIBACTERIAL PACKAGING AND EXTENDED SHELF LIFE OF CORIANDER LEAVES

Neenu K.V., Begum P.M.S., Kumar A.V., Kanoth B.P., Sankar S.,

Parameswaranpillai J., Badawi M., Dominic C D M.

Advanced Sustainable Systems

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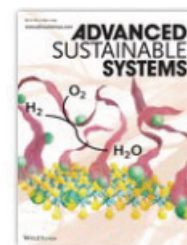
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ADVANCED SUSTAINABLE SYSTEMS

JOURNAL METRICS >

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Abstract

This study introduces a novel approach by developing cellulose nanopapers derived from pineapple pomace and impregnated with cinnamon essential oil (CEO) in the range of 1–5 wt.%. This innovative material aims to enhance the shelf life of coriander leaves through antibacterial packaging. Comparative analyses encompassed structural, crystalline, morphological, physico-mechanical, water barrier, permeability, and antibacterial properties against control samples. Incorporating CEO yielded a reduction in crystallinity index and tensile strength, attributed to a plasticizing effect. The addition of 5 wt.% CEO led to a remarkable 46% increase in elongation at break. Enhanced thermal stability, with a T_{max} rise of 26 °C, is attributed to hydrogen bonding between CEO and cellulose

molecules. The nanopapers exhibited notable reductions in oxygen and water vapor transmission rates (24% and 32% respectively) compared to control nanopapers. Impressive antibacterial activity against *S. aureus* and *E. coli* is observed. These developed nanopapers are applied as active packaging for coriander leaves, extending their shelf life by up to 3 and 15 days without and with refrigeration. Moreover, chlorophyll, carotenoid, and moisture content in coriander leaves stored with CEO-loaded nanopapers remained akin to fresh leaves. Thus, this study presents an environmentally friendly antibacterial packaging solution with potential for sustainable application.

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Author keywords- cellulose nanopaper; cinnamon essential oil; coriander leaves; food packaging; shelf life

Quartile – SCOPUS

Percentile –

Impact Factor – 1.7

SDG

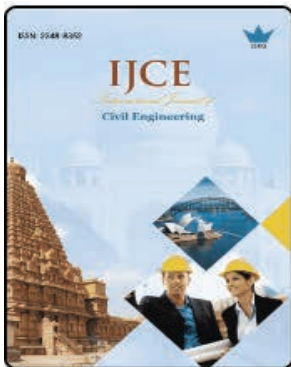


ENSURING WORKER SAFETY AT CONSTRUCTION SITES USING GEOFENCE

Nachiappan B., **Rajkumar N.**, Viji C., Mohanraj A.
SSRG International Journal of Civil Engineering

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Abstract

Worker protection is a vital problem in the primer of working sites, given the immoderate hazard of injuries and accidents. This summary delves into key factors of ensuring employee protection, collectively with implementing safety regulations, imparting private protective devices, and emphasizing schooling and cognizance packages. It moreover explores how eras, like drones and wearables, can beautify protection measures. The summary underscores the want for a holistic method of employee protection concerning cooperation amongst employers, employees, and regulatory bodies. The development organization has experienced a large international boom in brands new a long time. To make certain a manufacturing undertaking's achievement, the safety of every system

and employee is paramount. Protection problems have to start at the layout diploma and keep via to the form's finishing touch and handover. The development enterprise employs professional and unskilled workers who are susceptible to injuries and fitness dangers at production sites. However, there is mostly a lack of coordination among contractors, clients, and employees in ensuring comfy portray conditions, in Indian manufacturing businesses. Irrespective of the presence of difficult artwork safety legal guidelines, the frequency of accidents at creation net sites remains excessive, indicating a loss of manipulation and commitment to employee fitness and protection. Worker protection is a paramount problem in the manufacturing internet site, given the dangerous nature



ANALYSIS OF THE THERMAL PROPERTIES IN SHORT SANSEVIERIA CYLINDRICA FIBRE/PLA COMPOSITES PROCESSED BY TWIN SCREW EXTRUDER FOLLOWED BY HOT PRESS MOLDING TECHNIQUE

Krishnasamy S., Ungtrakul T., Chandrasekar M., Senthil Muthu Kumar T.,
Parameswaranpillai J., Mohit H., Aravind D., Rajini N., Siengchin S., Natarajan V.
Materials Research Express

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Abstract

Short *Sansevieria cylindrica* fibre/polylactic acid composites (SCFP) were fabricated using a twin screw extruder followed by the hot press technique, with variations in fibre loadings of 10 wt%, 20 wt%, 30 wt% and 40 wt%. The thermal properties of SCFP were assessed through dynamic mechanical analysis (DMA), thermomechanical analysis (TMA), thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC). Notably, the samples loaded with 40 wt% of fibre exhibited an increased storage modulus. In terms of loss modulus, the fibre-loaded samples displayed high values, indicating more heat is released during DMA experiment. Interestingly, the composite trend did not solely rely on increasing fibre loading, highlighting

the intricate interplay between reinforcement and matrix crucial for determining viscoelastic properties across various temperatures. The TGA results revealed a decrease in inflection temperature with increasing fibre loadings, accompanied by a proportional rise in residues. The DSC thermograms indicated minimal differences in T_g , T_{cc} , and T_m values among composites with varying fibre loadings. However, neat PLA showed slightly higher values than the composites. On the other hand, reinforcing SCF into the PLA matrix promoted the crystallization of PLA by 1%-3% with the maximum degree of crystallinity of 25.4% obtained for 30 wt% of SCFP.

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of the rendering surroundings. This summary outlines key techniques and practices for ensuring the safety of employees in such settings. It discusses the significance of enforcing protection protocols, supplying the right schooling, wearing out ordinary inspections, and promoting a way of existence of protection among humans and management. Moreover, it highlights

the placement of technology in enhancing protection measures alongside the usage of wearable devices and tracking systems. Ordinarily, the summary emphasizes the importance of proactive safety measures to save you from injuries and injuries in introductory workplaces.

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Author keywords- Civil Engineering; Construction; Geofence; IoT; Worker safety

Quartile – Q2 | Percentile – 64th | Impact Factor – 4.0 | SDG

GREEN ENGINEERING OF CELLULOSE NANOFIBERS AND NANOPAPERS FROM WODYETIA BIFURCATA FRUITS: A SUSTAINABLE APPROACH WITH EMPHASIS ON PROCESS OPTIMIZATION AND TENSILE PROPERTY ASSESSMENT

Sankar S., Neenu K.V., **Parameswaranpillai J.**, Ajithkumar T.G., Shelke A., Begum P.M.S., Kanoth B.P., George T.S., Badawi M., Midhun Dominic C.D.

Biomass Conversion and Biorefinery

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OPEN ACCESS

An open access, rapid peer-review journal publishing high quality research on the design, fabrication, properties and applications of all classes of materials.

Abstract

Nanocellulose emerges as a highly promising material with versatile applications, offering solutions to environmental and sustainability challenges. This study delves into the extraction of cellulose nanofibers (CNFs) from *Wodyetia bifurcata* fruit pulp through mild oxalic acid hydrolysis assisted by steam explosion. To ensure environmental compatibility, chlorine-free pre-treatments were applied to eliminate non-cellulosic components. Chemical composition analysis verified the effective removal of non-cellulosic elements, validated by Fourier transform infrared spectroscopy (FTIR). Solid-state ¹³C nuclear magnetic resonance (¹³C

NMR) spectroscopy confirmed the presence of type I cellulose -polymorph in the CNF, while a crystallinity index of 60% was determined by X-ray diffraction analysis (XRD). The transmission electron microscopy (TEM) images revealed a fibrous morphology with a fiber diameter ranging from 9 to 36 nm. Dynamic light scattering (DLS) was employed to corroborate the observed fiber diameter. Mild acid hydrolysis elevated the maximum degradation temperature (T_{max}) of CNF to 39 °C compared to the pristine sample. Furthermore, this research explores the application of CNFs in nanopaper development using a casting

method. The resulting nanopapers exhibited a tensile strength of ~ 17 MPa and a transmittance of 25%. These nanopapers present a viable pathway toward eco-friendly products in various industries, promising

to revolutionize upcoming sustainable packaging technologies. Graphical Abstract: (Figure presented.)
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Author keywords- Nanocellulose; Nanopapers; *Wodyetia bifurcata*



Quartile – Q3 | Percentile – 49th | Impact Factor – 0.37 | SDG



IMPLEMENTATION OF DESIGN APPROACH IN TRADITIONAL ATTIRE BODO DOKHONA FOR THE SUSTAINABILITY OF APPAREL CULTURE

Brahma C., Saha B., **Chowdhury A.**
Research Journal of Textile and Apparel

Dr. Anirban Chowdhury

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 Alliance School of Design & Creative Arts,
 Alliance University, Bangalore, INDIA



Abstract

Purpose: The purpose of this study is to empower a tradition Bodo attire Dokhona skilled artisan for their livelihoods and preserve cultural and historical legacy by using new themes influenced by Bodo items. **Design/methodology/approach:** To revive the traditional Bodo artefacts by adapting a varied form of motifs inspired from Bodo artefacts which showcases Bodo identity. **Findings:** Motifs implemented in apparel (e.g. Dokhona) inspired from Bodo traditional tools and musical instruments, signifying Bodo identity. Such apparels could be purchased by Bodo consumers as they are very keen to sustain their culture and heritage through motifs weaved in their traditional apparel. This study also proves that Dokhona designed with

novel motifs developed from traditional artefacts are better than currently available designs of Dokhona as these were more aesthetic and contemporary in look. **Social implications:** The motif adapted from traditional artefacts would motivate the weavers to weave innovative motif designs in their apparel bringing some newness in the Bodo traditional attire Dokhona, leads to business and women empowerment. **Originality/value:** This study showed the way to create innovative ideas for designing apparel (e.g. Dokhona) from cultural artefacts and helps prospective textile and apparel designers to design sustainable Dokhona. © 2024, Emerald Publishing Limited.

Author keywords- Apparel design; Bodo Dokhona; Cultural identity; Motifs design; Rural development; Sustainability; Textile weaving

Quartile – SCOPUS

Percentile –

Impact Factor –

SDG

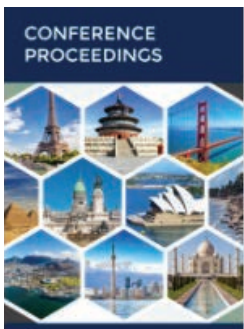


A REVIEW OF CLOUD COMPUTING INNOVATIONS FOR LEARNING

Jaiswal S., Shrouy V., **Patni J.C.**, Khandelwal P., Nagarkar D., Shelke N.
*Proceedings - 2024 5th International Conference on Intelligent Communication
Technologies and Virtual Mobile Networks, ICICV 2024*

Dr. Jagdish Chandra Patni

Professor,
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2024 5th International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV)

March 11 2024 to March 12 2024
Tirunelveli, India

ISBN: 979-8-3503-8564-9

Abstract

Cloud computing is the practice of offering services like servers, storage, analytics, and databases to networks or computer systems worldwide. With enhanced technical infrastructure, Internet users can now use computing frameworks with real-time applications through the web on their devices. Importance of the need for Educational Institutions to shift to Cloud computing-based real-time applications, which would facilitate better learning environments for students. This research study discussed about the

advantages, disadvantages, and essential impacts on students' learning curves. Applications like the learning management system and weighed importance are mainly focused in this research study. The fundamental unit of learning needed for the current age of education that can use cloud computing would face network responsiveness, and the readiness of the various tools is discussed in this review article.

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Author keywords- Cloud Computing; Infrastructure as a service (IaaS); Learning management system (LMS); Moodle; Platform as a service (PaaS); Software as a Service (SaaS)



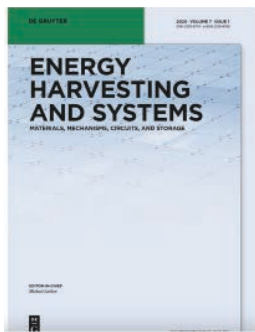
NUMERICAL INVESTIGATION OF SMART MATERIAL-BASED STRUCTURES FOR VIBRATION ENERGY-HARVESTING APPLICATIONS

Atul, Deepak G.D.

Energy Harvesting and Systems

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Energy Harvesting and Systems

Materials, Mechanisms, Circuits and Storage

ISSN: 2329-8766

Editor-in-chief: Michael Lublow

Abstract

The present work deals with energy-harvesting devices, which are useful in scavenging power using piezoelectric materials. Utilizing classical beam theory and classical plate theory, finite element modelling has been carried out to optimize the performance of output power of a cantilever beam and a flexible rectangular plate. Harmonic oscillations and base excitation will be the two different forcing functions used to drive the system. Based on this, numerical investigations of the performance of output power for the piezoelectric cantilever beam and flexible rectangular plate with different cases are considered. The present work is also

useful for designing the piezoelectric cantilever beams and plates to extract maximum output power within the frequency ranges from 0 to 200 Hz. Numerical investigations on the piezoelectric cantilever beam and flexible rectangular plate with different cases reveal that the performance of output power is influenced by factors like load resistance, applications of with and without host structures, and different design parameters like unimorph, bimorph, embedded, line- and cross-type piezoelectric patch arrangements.

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Author keywords- energy harvesting; piezoelectric; vibration

Quartile – Q3

Percentile – 37th

Impact Factor – 1.4

SDG



THE EVOLUTION OF MEDICAL IMAGING IN THE THERAPEUTICS OF PATIENTS WITH SKIN CANCER

Brar K.K., **Jeba Shiney O.**, Goyal B., Dogra A.

Current Medical Imaging

Jeba Shiney O

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Impact Factor: 1.4
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Volume 20, 2024

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Abstract

Introduction: Medical imaging mechanization has reformed medical management, empowering doctors to recognize cancer prematurely and promote patient outcomes. Imaging tests are of significant influence in the detection and supervision of cancer patients. Cancer recognition generally necessitates imaging studies that, in most instances, utilize a trivial amount of radiation. Methodologies such as X-rays, computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET) are predominant in clinical managerial, incorporating remedy and research. Background: Over recent years, diagnostic imaging has progressed from a state of commencement to an advanced level. Numerous modern imaging procedures have evolved. Although contemporary medical imaging comprises image exhibition together with image refining, computer-aided

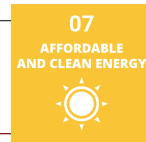
diagnosis (CAD), image inscribing and conserving, and image transference, the majority of which are embraced in picture documentation and communication processes. Aim: This review targets to encapsulate toxicology information on skin cancer unpredictability essential to interpretation measures, report important factor that helps in defining skin cancer condition, and possible medical care alternatives or medical attention endorsed referring to diverse aspects involving the size and site of malignancy, the complications, patient's priority and well being. We concisely review various therapy alternatives, methods of radiation autoimmunity, prime observational study designs of medical and distinct radiation resources and cancer risks, and current analysis methodologies and research precision. Conclusion: The detail of this paper covers a brief review of research and evolution in medical imaging

discipline and mechanism. This review considers the physiology of melanocytes and the pathogenesis of skin cancer using medical imaging. Also, a description of risk factors, prevention methods, screening, various

diagnosis methods and different stages of skin cancer, sub-types and different types of treatment methods is provided in this paper for research and development.

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Author keywords- Cancer imaging; Magnetic resonance imaging; Medical imaging; Optical coherence tomography; Research and development; Research precision



ENHANCING ELECTRIC VEHICLE CHARGING EFFICIENCY IN URBAN AREAS WITH 5G NETWORK INTEGRATION AND NETWORK ATTACK MITIGATION

Thingom C., Sen A.C., Jain A., Dutt K.

Networks Attack Detection on 5G Networks using Data Mining Techniques

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Abstract

Electric vehicles offer a promising solution for greener transportation due to their minimal greenhouse gas emissions. Nevertheless, the challenges of extended charging times and charging congestion continue to impede the seamless experience of electric vehicle owners in urban settings. Optimizing various aspects of electric vehicle charging, including charging services, station selection, scheduling, and security against potential network attacks, is imperative to address these issues. The incorporation of a smart grid further elevates the potential for optimization. In the context of future 5G-based Internet of Things (IoT) applications for traffic management, we introduce the charging priority (CP) preemptive charging scheduling strategy. This approach, founded on queuing theory, prioritizes the charging of electric vehicles with the

highest charging priority, determined by factors such as charging demand and remaining parking time, to maximize overall charging efficiency. Building upon the CP charging scheduling strategy, we propose a reservation-based charging station selection scheme that accounts for reservation information. It selects the charging station with the shortest charging journey time, considering a single charging session, thus minimizing overall travel time for electric vehicles. To implement this scheme effectively, electric vehicles must upload their charging reservation information, enabling precise prediction of the service congestion status at charging stations and efficient allocation of charging resources. The proposed optimized charging priority (CP) charge scheduling strategy and reservation-based charging station selection scheme are rigorously

validated through urban traffic data simulations. Results demonstrate their efficacy in significantly reducing the average charging journey time for electric vehicles and ensuring comprehensive charging services for a larger number of electric vehicles within the constraints

of limited parking time, all the while considering the potential challenges posed by network attacks.

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Quartile – Q2

Percentile – 68th

Impact Factor – 2.56

SDG



STUDENT'S INTEREST AND OPINION TOWARDS ONLINE EDUCATION

Vegur H.S.K., **Naren J.**, Singam Y. Procedia Computer Science

Mr. Naren J

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Procedia Computer Science

Open access

Abstract

The paper presents a study of the interest and opinions of students regarding online learning using a machine learning approach, as well as the evolution of different e-learning platforms based on education following the pandemic period. The study uses student data from a questionnaire-based survey of college students to improve the learning environment from the perspective of the students. The survey and questionnaire were designed with students' needs, requirements, and preferred level of quality for online learning. Survey data was subjected to data analysis and classification to gain a deeper understanding of the learner in a

virtual learning environment. Through data preparation, analysis, visualization, and machine learning algorithm accuracy, machine learning classification algorithms and analysis are used to examine the collected data. The research study will illustrate the expectations and enhancement of online learning education patterns according to the requirements of students. With a 93% accuracy evaluation, the Random Forest algorithm has the best accuracy among the several classification algorithms.

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Author keywords- Classification Analysis; Machine Learning; Online Education; Student's Perspective; Virtual Learning Environment tomography; Research and development; Research precision



PERFORMANCE ANALYSIS OF THE MACHINE LEARNING ALGORITHMS FOR THE EARLY DETECTION OF BREAST CARCINOMA

Vanitha K., Karpagavalli S. M., Mahesh T. R., Ali A. A., **Sridhar T.**, Anitha K.

IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation, IATMSI 2024

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2024 IEEE International Conference on Interdisciplinary Approaches in Techn Innovation (IATMSI)

14-16 March 2024

Volume : 2 ▾

Abstract

Breast Carcinoma, generally known as breast cancer, primarily affects women, though men can develop it as well. Because of the existence of breast tissue and exposure to female hormones, notably oestrogen, women are at a higher risk. It's critical to diagnose breast tumors early. Several techniques based on machine learning (ML) were used in this study to classify breast cancer using a dataset that was made available to

the public. F-score, recall, precision, preciseness, and other performance metrics were used to evaluate these ML algorithms. Previous research and experimental findings indicate that Random Forest achieved the highest accuracy, with a remarkable accuracy rate of 99.12%.

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Author keywords- breast cancer; KNN; Machine Learning; performance; SVM



LUNG CANCER DISEASE PREDICTION USING HYBRID SUBTRACTIVE CLUSTERING METHOD

Paul B., Mir M. H., Murugan S., Kurian A.

IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation, IATMSI 2024

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2024 IEEE International Conference on Interdisciplinary Approaches in Techn Innovation (IATMSI)

14-16 March 2024

Volume : 2 ▾

Abstract

As of right now, lung cancer is the primary cause of cancer-related deaths worldwide for both men and women. One possible explanation for lung cancer's main cause is smoking. 86% to 96% of instances of lung cancer are thought to originate in the epithelial cells that line the larger and smaller airways (bronchi and bronchioles), despite the fact that lung cancer can grow in any section of the lung. The primary objective of this work is to identify lung cancer using the ANFIS

approach based on subtractive clustering method. Using Kaggle, we have made use of the Lung Cancer dataset. The network is trained using data from 1000 lung cancer patients, ranging in age from 14 to 73. The proposed system uses 11 input attributes to assess the presence and absence of lung cancer during testing, and consistently achieves 100% accuracy for each clustering radii.

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Author keywords- Adaptive Neuro-Fuzzy Inference System (ANFIS); Artificial Neural Network; Lung cancer; Lung cancer dataset; Subtractive Clustering Method



A BREAKTHROUGH APPROACH FOR PROSTATE CANCER IDENTIFICATION UTILIZING VGG-16 CNN MODEL WITH MIGRATION LEARNING

Ebin P.M., Ananthanagu U., Mara G. C., Indu B., Thomas R., Mathkunti N. M.
IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation, IATMSI 2024

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2024 IEEE International Conference on Interdisciplinary Approaches in Techn Innovation (IATMSI)

14-16 March 2024

Volume : 2 ▾

Abstract

In the realm of medical visual scrutiny, the accurate identification of prostate cancer holds paramount significance for early diagnosis and effective treatment. This work presents a pioneering method for prostate cancer identification, harnessing the power of deep learning and Migration Learning strategies. Leveraging the VGG-16 Convolutional Neural Network (CNN) framework as the cornerstone, the proposed approach capitalizes on its ability to extract intricate features from medical images. By incorporating Migration Learning, the model is enriched with knowledge gleaned from diverse datasets, enabling it to achieve exceptional performance even with limited medical

image data. The methodology entails meticulous dataset curation and preprocessing, ensuring the quality and representativeness of the images. The VGG-16 model undergoes a meticulous finetuning process, accommodating the unique characteristics of prostate cancer images. Performance evaluation is conducted rigorously, utilizing established metrics to gauge the approach's effectiveness. Comparative analysis with contemporary methods showcases the breakthrough potential of the proposed approach. The model gave 93.97% testing accuracy.

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Author keywords- CNN; Migration Learning; Prostate Cancer; VGG16



DEVELOPMENT OF PRECISION MEDICINE FOR HEPATIC CANCER EVOLVING MOLECULAR PROFILING TECHNIQUES THROUGH ARTIFICIAL INTELLIGENCE

Jagan S., Parthasarathi H., **Londhe G. V.**, Srinivas K., Manchanda M., Krishna G. R.
Journal of the Balkan Tribological Association

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Journal of the Balkan Tribological Association

International Journal edited and published by Scibulcom Ltd. for rapid scientific and other information, covering all aspects of the processes included in overall tribology, tribomechanics, tribochemistry and tribology.

Abstract

Hepatic cancer and particularly hepatocellular carcinoma leads to larger global health concerns with the highest mortality and morbidity rates. Precision medicine provides an exact solution for individual patients with their disease. The mechanism of hepatic cancer progression and identification of prognostic indications for personalized therapeutic interpolations are obtained through tissue microenvironment analysis and molecular profiling. The proposed system involves the extraction and identification of critical prognostic factors from molecular datasets using deep learning with hybrid optimization techniques such as ant colony optimization and genetic algorithm. The important objective of this innovation is to identify the intricate interplay between genetic, epigenetic and microenvironment factors within the cancer tissues. This is initiated through a multi-omics approach, which

involves genomics, epigenomics, transcriptomics and proteomics data. These obtained datasets are preprocessed in order to obtain consistency in the system. Various external noise factors and dimensions are reduced using feature extraction techniques to extract the necessary information attributes. The hybrid optimization techniques are initiated to provide optimal features for accurate prognostic predictions. The integration of GA and ACO helps in enhancing the exploration and exploitation of the feature space. The validation process is performed on a large dataset, which contains the exact information of hepatic cancer patients. The observed prognostic features are calculated for consistency and robustness with clinical relevance. The patient outcomes are trained and tested using selected features for identifying the prognostic values of tissue microenvironment analysis.

The uniqueness of hybrid optimization techniques is assessed through a comparative analysis of the proposed system using existing models. Thus precision medicine is developed through the personalization of a patient's condition in hepatic cancer. Thus the accuracy

of the prognostic predictions is obtained through the complex interrelationship between the molecular attributes and the tissue microenvironment.

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Author keywords- deep learning; hepatic cancer; hybrid optimization techniques; precision medicine; tissue microenvironmental analysis

Quartile – Q3

Percentile – 44th

Impact Factor –

SDG



A ROBUST HYBRID CONVOLUTIONAL NETWORK FOR TUMOR CLASSIFICATION USING BRAIN MRI IMAGE DATASETS

Bansal S., Jadon R. S., Gupta S.K. International Journal of Advanced Computer Science and Applications

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International Journal of Advanced Computer Science and Applications (IJACSA)

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Abstract

Brain tumour detection is challenging for experts or doctors in the early stage. Many advanced techniques are used for the detection of different cancers and analysis using different medical images. Deep learning (DL) comes under artificial intelligence, which is used to analyse and characterisation medical image processing and also finds the classification of brain cancer.

Magnetic Resonance Imaging (MRI) has become the keystone in brain cancer recognition and the fusion of advanced imaging methods with cutting-edge DL models has exposed great potential in enhancing accuracy. This research aims to develop an efficient hybrid CNN model by employing support vector machine (SVM) classifiers to advance the efficacy and stability of the projected convolutional neural network

(CNN) model. Two distinct brain MRI image datasets (Dataset_MC and Dataset_BC) are binary and multi-classified using the suggested CNN and hybrid CNN-SVM (Support Vector Machine) models. The suggested CNN model employs fewer layers and parameters for feature extraction, while SVM functions as a classifier to preserve maximum accuracy in a shorter amount of time. The experiment result shows the evaluation of the projected CNN model with the SVM for the performance evaluation, in which CNN-SVM give the maximum accuracy on the test datasets at 99% (Dataset_BC) and 98% (Dataset_MC) as compared to other CNN models.

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Author keywords- brain tumor; CNN; deep learning; MRI images; SVM

Quartile – Q3

Percentile – 37th

Impact Factor – 1.4

SDG



THE EVOLUTION OF MEDICAL IMAGING IN THE THERAPEUTICS OF PATIENTS WITH SKIN CANCER

Brar K.K., **Jeba Shiney O.**, Goyal B., Dogra A.

Current Medical Imaging

Jeba Shiney O

ECE,

Alliance University, Bangalore, INDIA

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Volume 20 , 2024

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Abstract

Introduction: Medical imaging mechanization has reformed medical management, empowering doctors to recognize cancer prematurely and promote patient outcomes. Imaging tests are of significant influence in the detection and supervision of cancer patients. Cancer recognition generally necessitates imaging studies that, in most instances, utilize a trivial amount of radiation. Methodologies such as X-rays, computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET) are predominant in clinical managerial, incorporating remedy and research. Background: Over recent years, diagnostic imaging has progressed from a state of commencement to an advanced level. Numerous modern imaging procedures have evolved. Although contemporary medical imaging comprises image exhibition together with image refining, computer-aided

diagnosis (CAD), image inscribing and conserving, and image transference, the majority of which are embraced in picture documentation and communication processes. Aim: This review targets to encapsulate toxicology information on skin cancer unpredictability essential to interpretation measures, report important factor that helps in defining skin cancer condition, and possible medical care alternatives or medical attention endorsed referring to diverse aspects involving the size and site of malignancy, the complications, patient's priority and well being. We concisely review various therapy alternatives, methods of radiation autoimmunity, prime observational study designs of medical and distinct radiation resources and cancer risks, and current analysis methodologies and research precision. Conclusion: The detail of this paper covers a brief review of research and evolution in medical imaging

Quartile – Q2

Percentile – 58th

Impact Factor – 0.28

SDG



SOCIAL MEDIA FOR SCIENCE-SCIENCE AND SCIENCE-SOCIETY CONNECTS: ASSESSING THE READINESS IN INDIAN CONTEXT THROUGH AN ANALYSIS OF SOCIAL MEDIA VISIBILITY OF RESEARCH PAPERS

Singh V. K., Karmakar M., Kanaujia A., Bhattacharya S.
Journal of Scientometric Research

Dr. Mousumi Karmakar

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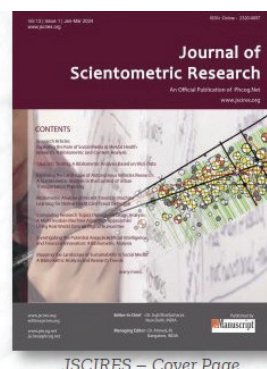
Aim and Scope

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JSCIRES – Cover Page

Abstract

The technological advancements and emergence of new kinds of communication mediums, especially social media and networks, have brought an era of unprecedented connectivity, which can be leveraged for better science communication. This paper explores social media activity around Indian research papers with the objective of evaluating if the quantum of activity is sufficient enough to indicate that social media can be an effective medium of science communication in India. In the absence of any existing survey of social media usage by scientists in India, the paper uses altmetrics as a proxy measure to capture; science communication activities around two major classes,

namely, science-science connect and science-society connect. Results indicate that social media activity around Indian research papers is relatively low as compared to the developed countries and also the world average. There is a higher activity in science-science connect (Mendeley) whereas science-society connect is less pronounced (other social media and news). The paper argues that there is a need to expose Indian research community to the opportunities that social media presents and that an appropriate use can be helpful for improved science-science and science-society connects.

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Author keywords- Indian Science; Science and Society; Science Communication; Scientific Research; Social Media



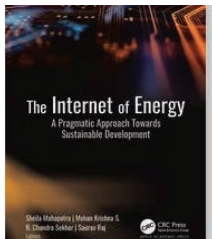
EFFICIENT INTEGRATION OF DISTRIBUTED GENERATION IN RADIAL DISTRIBUTION NETWORK FOR VOLTAGE PROFILE IMPROVEMENT AND POWER LOSS MINIMIZATION VIA PARTICLE SWARM OPTIMIZATION

Guru P., Malik N., Mahapatra S.

The Internet of Energy: A Pragmatic Approach Towards Sustainable Development

Dr. Sheila Mahapatra

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HOD - Electrical & Electronics Engineering,
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Alliance University, Bangalore, INDIA



1st Edition

The Internet of Energy
A Pragmatic Approach Towards Sustainable Development

Edited By Sheila Mahapatra, Mohan Krishna S., B. Chandra Sekhar, Saurav Raj

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Hardback eBook

Abstract

The distribution system is a last and the final link between the generating stations and the consumers end. The integration of distributed generation (DG) resources in distribution system is crucially important due to ever-growing increased energy demand. The ideal allocation (sizing and siting) of DG could lead to accomplish the various benefits like improved voltage profile and reduced losses. The load is modeled as constant complex power. The power flow solution for the type-1 DG integrated test system is computed using direct load flow approach under normal loading conditions for a balanced distribution system. The problem is formulated as single-objective constrained optimization problem. PSO algorithm is used for optimal allocation of DG in radial distribution system. The performance is tested and validated on

four IEEE standard bus systems viz. 12-bus, 33-bus, 34-bus and 69 bus systems. The percentage of real power loss reduction 208using PSO approach is by 48.30%, 47.36%, 57.73% and 63.05% for IEEE 12-bus, 33-bus, 34-bus, and 69-bus system respectively. The appreciable rise in the minimum voltage using proposed methodology is in the range of 3.8%-6.5% for all the four test systems respectively. The annual energy loss savings for type I DG also shows the remarkable benefits compared to other published results. The proposed methodology is further compared and tabulated with analytical approach as well as other methods to exemplify the superiority of the proposed work.

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Author keywords- Cloud Computing; Infrastructure as a service (IaaS); Learning management system (LMS); Moodle; Platform as a service (PaaS); Software as a Service (SaaS)



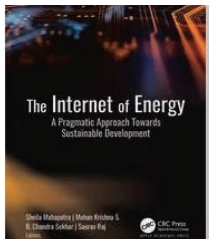
A NOVEL ELECTRICAL LOAD FORECASTING MODEL USING A DEEP LEARNING APPROACH

Kumar N.A., Danie R., Pasam P.K.

The Internet of Energy: A Pragmatic Approach Towards Sustainable Development

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1st Edition

The Internet of Energy A Pragmatic Approach Towards Sustainable Development

Edited By Sheila Mahapatra, Mohan Krishna S., B. Chandra Sekhar, Saurav Raj

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eBook

Abstract

The estimate of electricity appeal in modernistic years is becoming progressively relevant thanks to market-free trade and, thus, the initiation of sustainable assets. To satisfy the demands, leading intelligent models are built to form sure explicit power forecasts for multi-time prospects. The load forecasting of electric Power is a crucial process in devising the electric industry and operating electric power systems. Short-term forecasts are adopted to program the power generation and transmission of electricity. Medium-term forecasts are meant to line up the fuel purchases. This necessitates the implementation of the productive determination of algorithms could be a fundamental feature of smart grids and an efficient tool for determining ambiguity for better cost and energy ability decisions like slate the origination, authenticity, power escalation of the system, and monetary smart grid activities. This work introduces a model for the evaluation of the utilization of electricity, which can accurately

forecast 68 subsequently estimated from minimum to maximum duration with significant improvement in the accuracy of forecasting through advanced deep learning techniques. The analyzes or findings also can provide interesting results for energy consumption with parameters like forecasting efficiency and error with duration of data monitoring algorithms namely (LSTM)-long short-term memory (RNN) - recurrent neural networks and multi-layer perceptron algorithms (MLP). These algorithms furnish the most interesting results with respective to the duration of data. Mainly, MLP and RNN proved to produce favorable results for 24-hour data. Similarly, LSTM has proved better for 15-day data and monthly data with consistency in terms of errors, squared, and mean square. To anticipate data ranging from day to month, the minimal Forecasting error was attained by adopting MLP with $R^2(0.91)$. On hour-based data, R^2 of LSTM holds effective for half-monthly and monthly data with (0.88 and 0.93), RMSE (89.54 and

84.98), MAPE (3.51 and 2.47). RNN has been proven to attain the moderate outputs comparatively. MLP for half-monthly and monthly in terms of R2(0.81 and 0.92), RMSE (90.72 and 85.78) and MAPE (4.25 and

4.01). The result of LSTM acknowledges the enhanced attainment and substantial achievements of electrical load forecasting.

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Author keywords- deep learning; electricity load forecasting; load demand growth; Long short-term load forecasting (LSTM); multi-layer perceptron (MLP); real-time data; recursive neural networks (RNN); smart grids



Quartile – SCOPUS | Percentile – | Impact Factor – | SDG



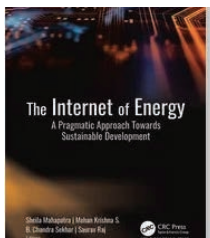
THE INTERNET OF ENERGY: A PRAGMATIC APPROACH TOWARDS SUSTAINABLE DEVELOPMENT

Mahapatra S., Mohan K.S., Chandra Sekhar B., Raj S.

The Internet of Energy: A Pragmatic Approach Towards Sustainable Development

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1st Edition

The Internet of Energy A Pragmatic Approach Towards Sustainable Development

Edited By Sheila Mahapatra, Mohan Krishna S., B. Chandra Sekhar, Saurav Raj

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Abstract

Providing innovative efficient, clean, and safe solutions and research for interfacing internet technology with energy power grids for smart cities and smart transportation, this new volume discusses the use and automation of electricity infrastructures for energy producers and manufacturers, integrating the implementation of the Internet of Things (IoT) technology for distributed energy systems in order to optimize energy efficiency and wastage. This volume

offers a wide range of research on using IoT for energy solutions, such as algorithms for the design and control of energy grids, investigations of thermal efficiency from solar grids, energy for smart buildings using IoT, deep learning for electrical load forecasting, hybrid ultracapacitors in solar microgrids, induction motor-driven electric vehicles, power loss reduction and voltage improvement, and much more.

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STUDY OF FACTORS AFFECTING CUSTOMER PATRONAGE: ENGAGEMENT MODEL OF HEALTH INSURANCE

Bhattacharyya A., Rana A., Imran Khan M.

International Journal of Pharmaceutical and Healthcare Marketing

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International Journal of Pharmaceutical and Healthcare Marketing

Issue(s) available: 70 – From Volume: 1 Issue: 1, to Volume: 18 Issue: 2

Subject: [Marketing](#) > [Marketing strategy/methods](#)

Abstract

Purpose: Improving health outcomes requires a robust health-care service model that delivers cost-efficient services and increase customer patronage. The purpose of this study is to examine how service quality and convenience influence perceived value, satisfaction and customer patronage of health insurance policyholders. Based on contemporary research, this study further investigates the moderating role of trust, inertia, insurer type and word-of-mouth (WOM) on relationship between satisfaction and customer patronage. Design/methodology/approach: This study conceptualized the dimensions of SERVQUAL and SERVCON as drivers of perceived value leading to satisfaction and finally customer patronage in presence of four moderators. To test the hypotheses, data from 500 consumers who had a running health insurance policy was collected and analyzed using partial

least square path modeling. Findings: The results of this study showed service quality and convenience dimensions significantly affected perceived value. Perceived value strongly influenced satisfaction and customer patronage intentions. Satisfaction had a significant positive effect on patronage. WOM and trust moderated the satisfaction—patronage relationship for recommendation intention but not repurchase intention. The moderators had an indirect bearing on customer patronage. Social implications: Such an engagement ecosystem can be considered to be a revolution, as it will change the way businesses are conducted and how stakeholders interact with one another. Originality/value: This study adapts and integrates the SERVQUAL and SERVCON models to health insurance domain. Second, this study conceptualizes a modified view of post-benefit convenience relevant for health insurance

as policy renewal intention rather than returns/
exchanges. This addresses a gap in the SERVCON
scale's applicability to insurance services. This study

also makes a novel attempt of examining implication of
WOM and trust in health insurance domain.

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Author keywords- Customer engagement; Ecosystem; Health insurance; Inertia; Service convenience; Service
quality; Trust; Word-of-mouth

Quartile – SCOPUS

Percentile – Nil

Impact Factor –

SDG



BANGLADESHI LOCAL FRUITS DETECTION AND CALORIE CALCULATOR USING CNN

Mamun M. A., Siddiquee M. T., Banshal S. K., Pandey B. K., Konyrkhanova A. A.
Proceedings of the 18th INDIACom; 2024
11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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International Conference on Computing for Sustainable Global Development (INDIACom)

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Abstract

There are many varieties of local fruits in Bangladesh. Now some of them are moribund. The aim of this paper is to introduce these local and moribund fruits to the next generation and to build a local fruit model that can be used beneficially for future research in the field of local fruits. Though all Bangladeshi fruit names and their identities are already entered in the database, but all the information is not accessible always, and most people don't know about them. There are a lot of local fruits in Bangladesh which contain so many calories that it's beneficial to us, but the calorie content of the same is unknown. This problem can be solved by an automatic fruit identifier, which would make many

people familiar with the fruits in a timely manner. The calories of the fruit detected can also be calculated using an Android app. The proposed app is not only calculating calories, but it's introducing local fruits to the next generation. A method of deep convolutional neural networks (CNN) model is used to classify fruits from fruit images. To detect fruit and calculate its calorie content, this model is incorporated into the mobile app. In terms of accuracy, the model has reached about 98.03%. In the field of real-time fruit identification, this method is very useful.

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Author keywords- calorie calculator; CNN; local fruits; moribund; neural networks



TRAFFIC CONGESTION PREDICTION USING MACHINE LEARNING

Kafy M.A., Faisal S. I., Rahman M. L., Moni R., Shanmuganathan H., Raza D. M.
 Proceedings of the 18th INDIACom; 2024
 11th International Conference on Computing for Sustainable Global Development,
 INDIACom 2024

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Abstract

Due to the world population growing rapidly over time, the number of personal and local vehicles are increasing which is one of the main causes of high traffic on the roads. For high traffic, the average speed of vehicles is decreasing which is known as traffic congestion. It is a very common and alarming problem in today's world. Due to traffic congestion, civilians are facing different problems in this 21st century. Time is a precious thing and traffic congestion is killing the most precious times of our lives. In this paper, the authors aimed to offer a traffic congestion prediction model that will help to predict the traffic congestion of a particular area in a definite time period. During

working with machine learning models or algorithms there is a concern about the accuracy of the result. To overcome this problem, 5 different machine learning models which are used decision tree, random forest, logistic regression, SVM, and MLP to predict the congestion rate. The authors compared those models with each other and calculated the mean absolute error for each of the models so that the prediction can be more accurate. Efforts are made to alleviate the traffic congestion reducing commute times and lower carbon emissions and to enhance the overall quality of life in cities.

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Author keywords- decision tree; logistic regression; random forest; time series analysis; traffic congestion



AN INVESTIGATION OF THE INTELLIGENT AND SECURE CHILD RESCUE SYSTEM FROM BOREWELL

Shanmuganathan H., Deepak D. M., Choudhury A., Priyadarshini M., Mayura B.S., Reddy K. Y.

Proceedings of the 18th INDIAcom; 2024, 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

India is primarily recognized as an agricultural nation; the country relies on groundwater to meet with basic water needs of the farmers. An increasing population, decreasing land-based resources, and progressing urbanization have intensified the demand for bore wells. In areas where water is scarce, the main supply of water is provided by borewells. However, many depleted boreholes remain open. These borewells have started to cause the loss of many innocent lives. The rescue of a child from a bore well is considered a labor-intensive, multistep procedure requiring a high

level of workforce. According to reports from the National Disaster Response Force (NDRF), more than 40 children have lost their lives since 2009 due to inadvertent falls into borewells, and traditional methods have resulted in the failure of more than 70% of rescue attempts. An array of IoT based systems has been developed to address this issue. This paper presents an overview of various solutions that have been introduced to tackle the problems associated with rescuing children from bore wells.

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Author keywords- Arduino; borewell; child rescue; IoT; NDRF; robot



DISENTANGLEMENT OF LATENT REPRESENTATION FOR FACE VECTORIZATION USING STACKED MULTI-TASKED LEARNERS

Kurian A., Gupta S., Paul B., Gupta P.K.




Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

Disentanglement of the latent space of facial features like eyes, nose, mouth, and brows, also known as face vector regression, aims to identify well-defined subset subspaces for each attribute to permit manipulation on points within the local subspace for synthesis and editing tasks. A delineated feature space gives greater control over the variation in data and aids in the processes of facial synthesis and facial attribute editing. This study addresses this challenge by enabling uncoupled feature encoding of facial attributes while keeping resource utilization to a minimum. Given that the development of generative models is constrained by extensive memory and resource requirements, this work proposes a simple and novel algorithm for disentangling the latent space of facial attributes from

an image. The challenge has been addressed by using a neural architecture comprising multi-tasked convolutional neural networks for shared feature extraction and an ensemble of multi-tasked learners for a disentangled manifold of facial attributes. Additionally, the model also comprises a classification module and a reconstruction module to ensure identity preservation of attributes. The model has been deployed with minimal supervision. The optimality of the disentangled manifold can be observed by reconstructing the individual facial features of the image from this space with an accuracy of 99.8%, 99.9%, and 91.3% for the left eye, right eye, and mouth, respectively.

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Author keywords- attribute; disentanglement; facial; latent; modeling



ENHANCING ROAD SAFETY: A SMART ACCIDENT ALERT SYSTEM FOR RAPID EMERGENCY RESPONSE

Kishore S., **Nair R. R.**, Babu T.

Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

Millions of lives are at risk annually due to traffic accidents, and the need for a proactive and efficient accident detection system is paramount. The traditional accident detection system faces some challenges such as limited scalability, connectivity, power consumption, and reliability of sensors. So proposed an accident detection system with Internet of Things (IoT) technologies to enhance road safety and emergency response mechanisms. The proposed system integrates advanced components such as Global Positioning System(GPS) modules, and Global System for Mobile Communication(GSM) modules to enable real-time monitoring, precise location tracking, and immediate communication with emergency services. The novelty

of this work lies in the implementation of a cost-effective accident detection system that accurately provides alerts to the intended party. The system delivers alert messages containing longitude and latitude coordinates. Additionally, it initiates alerts in the form of phone calls, fostering timely communication with accident victims. This prompt interaction has the potential to save lives by facilitating on-demand treatment and immediate assistance to those in need. This methodology has the potential for future applications in industries such as Traffic Management and Analysis, Road Safety Enhancement, and Emergency Response Optimization.

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Author keywords- Emergency Response Optimization; Global Positioning System; Global System for Mobile Communication; Internet of Things; ThingSpeak



Quartile – SCOPUS | Percentile – Nil | Impact Factor – | SDG



A COMPREHENSIVE STUDY ON ENSEMBLE FEATURE SELECTION TECHNIQUES FOR CLASSIFICATION

Akhy S.A., Mia M. B., Mustafa S., Chakraborti N. R., **Krishnachalitha K. C.**, Rabbany G. Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

Feature Selection (FS) has become an essential step in many Machine Learning (ML) platforms. When compared to a single feature selection method, the Ensemble Feature Selection (EFS) method has gained enormous appeal for its ability to select less dimensional, pertinent features. This study presents a comprehensive empirical study examining several papers and showing that the ensemble method outperforms the single Feature Selection methods. The ensemble’s characteristics stand for Effectors of the ensemble technique including single methods that, in general, perform better, thresholds for related subset generation, aggregator methods, and different kinds of datasets. The relationship between classifications

and the Ensemble feature selection method stands out in this research. This research’s goal was to show how the best characteristics improve the robustness, stability, and accuracy of classification performance. A crucial data preprocessing method for data science is feature selection. Based on this reasoning and the goal of simplifying feature selection for a classification model and evaluation is styled. To create the best features and demonstrate the classification techniques’ great performance requirements, this study provides the reader with the fundamental concepts regarding attributes that will be used to build an effective ensemble method.

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Author keywords- Aggregator; Classification; Ensemble method; Feature selection; Threshold



MACHINE LEARNING CHALLENGES OF E-GOVERNMENT MODELS OF CLOUD COMPUTING IN DEVELOPING COUNTRIES

Tamilarasi R., Kumar P. N. S., Ghantasala G. S. P., Rao D. N., Bathla P., Gupta G., Sonia Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

Cloud computing usage in electronic government (e-government) is developing across nations and presents a range of difficulties. Infrastructure problems, such as unreliable internet connections and insufficient devices, make it difficult to integrate cloud solutions efficiently. Concerns about data security and privacy arise when private information about citizens is stored in the cloud and could be hacked or accessed without permission. Economic limits and resource constraints could prevent cloud infrastructure installation, thereby reducing e-government service scalability and efficiency. Compliance with various regulations adds complexity to the legal and governmental aspects of

managing cloud data. A scientific investigation reveals that while cloud computing-driven e-government services offer numerous advantages, factors such as IT infrastructure, internet accessibility, and confidence in emerging technologies could pose barriers to their adoption. Also, recommend trust-focused cloud computing solutions for e-government services (CCSE-GS). Finally, this study focuses on the number of obstacles that developing countries must overcome to fully realize the potential of cloud computing for e-government services.

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Author keywords- Challenges about e-government; Cloud Computing; E-Government models; IT infrastructure



CLASSIFYING DIFFERENT TYPES OF SMOKERS AND DRINKERS BY ANALYZING BODY SIGNALS USING MACHINE LEARNING

Hasan R., Hasan F., Hasan M., Islam M., Abdullah-Al-Kafi M., **Karmakar M.**

Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

Alcohol consumption and smoking are one of the most leading preventable causes of mortality worldwide. Timely detection can play a vital role to prevent these kinds of addictions. To achieve that our study utilizes body signals to develop a machine-learning-based classification system for predicting the types of smokers and drinkers, where we used Logistic Regression, K-Nearest Neighbors, Naïve Bayes, and Random Forest for the classification. It has been found that Naïve Baye and Random Forest both perform well among the

four classification algorithms we have used. Random Forest performs better than Naïve Bayes in this regard. In terms of accuracy, precision, recall, and f1 score Random Forest is the most superior model among the four, achieving the highest score for both smoker and drinker types Rand. By considering all that we can say Random Forest would be a great choice for predicting the types of smokers and drinkers.

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Author keywords- drinker type; k-nearest neighbors; lifestyle behavior prediction; logistic regression; naïve bayes; random forests; smoker type

Quartile – SCOPUS

Percentile –

Impact Factor –

SDG



PREVENTION OF SECURITY ATTACKS AT WIRELESS NETWORK LAYERS USING MACHINE LEARNING TECHNIQUES

Ramisetty S., **Ghantasala G. S. P.**, Gupta G., Sonia




Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

Wireless sensor networks have great potential for use in flood control, weather forecasting systems, the military, and the healthcare industry. A WSN's nodes are connected to one another and share information. When sending data between nodes, data security is essential. In the world of networking, security is a top priority. Data travels along a path when it is transferred from one location to another, increasing the likelihood that a rogue node would enter the network. Detecting

malicious nodes within a network presents a formidable challenge, particularly due to external assaults on data packets during their transmission between nodes. Hackers take advantage of weaknesses to manipulate and alter data as it travels from the source node to the destination node. This paper looked at machine learning algorithm-based preventive measures and layer-level security challenges.

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Author keywords- Machine Learning; Security; Security attacks; Wireless Sensor Networks



LANE DETECTION FOR AUTONOMOUS VEHICLES WITH CANNY EDGE DETECTION AND GENERAL FILTER CONVOLUTIONAL NEURAL NETWORK

Kishor S., **Nair R.R.**, Babu T., Sindhu S., Vishnu Vilashini S.

Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

Lane detection has been a complex issue that has garnered the attention of the computer vision community for many years. It is a crucial element for self-driving cars and computer vision in general. Lane detection is used to define the path for autonomous vehicles and prevent the risk of drifting into another lane. So proposed a study to develop a method that can detect lane lines in real-time using the OpenCV library and computer vision concepts. To accomplish this, identify the white markings on both sides of the lane. The proposed work focuses on identifying the road lane lines that autonomous cars must adhere to,

ensuring that they do not cross into other lanes or drive in the opposite direction, which could lead to accidents. The performance of the work assessed using actual road images and videos captured by the car's front-mounted camera. So proposing a basic and easy algorithm for tacking and detecting lanes. The lanes have been detected through all competitions based on data from the camera, which is carried by algorithms. The proposed work implementing image processing techniques to capture the exact and accurate lane ways and hough transformation techniques.

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Author keywords- Arduino UNO; Canny Detection; DHT11; Hough Transformation; LDR sensor



IMPROVE ACCURACY IN HEALTHCARE DATA ANALYSIS USING COMPETITIVE ENSEMBLE DEEP LEARNING MODEL

Sravanthi J., Reddy C. S., Mahendar A., Kumar V. R., Buragadda S., Ghantasala G. S. P., Gupta G.




Proceedings of the 18th INDIAcom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

This paper discusses the significance of Machine Learning (ML) and Deep Learning (DL) techniques for structured and unstructured healthcare data. As healthcare data is increasing tremendously, it is difficult to identify hidden patterns in huge amounts of data. DL handles a massive amount of clinical data and provides better outcomes. A novel competitive ensemble deep learning model has been proposed to improve the classification performance of structured data.

However, dealing with unstructured data, the proposed work highlights a competitive DL model for Twitter sentiment analysis. In addition, this paper discusses the proposed Competitive Ensemble Deep Learning (CEPL) algorithm for text data. The proposed model is compared with a traditional model to evaluate the model's performance in the range of 0.2%-0.5%.

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Author keywords- Accuracy; CEPL; Deep Learning; Healthcare data; Machine learning Methods



IMPROVING PREDICTIVE ANALYTICS FOR STUDENT DROPOUT: A COMPREHENSIVE ANALYSIS AND MODEL EVALUATION

Sabbir W., Abdullah-Al-Kafi M., Afridi A. S., Rahman M.S., Karmakar M.




Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024

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Abstract

This research project uses careful data preparation and machine learning model assessment to provide an in-depth analysis of a dataset of students in college or university. The first analysis looks at goal value distributions, economic variables, and student counts by gender. The handling of outliers, feature selection, and class imbalance are all addressed by further filtering. Using ROC curves to highlight classification strength, the study assesses several classifiers, including XGBoost, Random Forest, K-Nearest Neighbors (KNN), and Decision Tree. With the greatest AUC of 0.99, Random Forest remarkably

shows excellent predictive power, closely followed by XGBoost at 0.98. XGBoost performs exceptionally well on testing and training datasets. The findings contribute valuable insights into predictive modeling for understanding and predicting student outcomes, emphasizing the potential to enhance educational support systems. This integrated approach, combining exploratory data analysis and machine learning techniques, establishes a robust framework for future research in educational data mining and predictive analytics.

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Author keywords- Class Imbalance; Data Preprocessing; Predictive Analytics; Random Forest; ROC Curve; XGBoost

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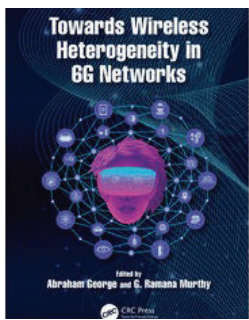
TOWARDS WIRELESS HETEROGENEITY IN 6G NETWORKS

George A., **Murthy G. R.**

Towards Wireless Heterogeneity in 6G Networks

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Towards Wireless Heterogeneity in 6G Networks

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Abstract

The connected world paradigm effectuated through the proliferation of mobile devices, Internet of Things (IoT), and the metaverse will offer novel services in the coming years that need anytime, anywhere, high-speed access. The success of this paradigm will highly depend on the ability of the devices to always obtain the optimal network connectivity for an application and on the seamless mobility of the devices. This book will discuss 6G concepts and architectures to support next-generation applications such as IoT, multiband devices, and high-speed mobile applications. IoT applications put forth significant challenges on the network in terms of spectrum utilization, latency, energy efficiency, large number of users, and supporting different application characteristics in terms of reliability, data rate, and latency. While the 5G network development was motivated by the need for larger bandwidth and higher quality of service (QoS), 6G considerations

are supporting many users with a wide application requirement, lowering network operating cost, and enhanced network flexibility. Network generations beyond 5G are expected to accommodate massive number of devices with the proliferation of connected devices concept in connected cars, industrial automation, medical devices, and consumer devices. This book will address the fundamental design consideration for 6G networks and beyond. There are many technical challenges that need to be explored in the next generation of networks, such as increased spectrum utilization, lower latency, higher data rates, accommodating more users, heterogeneous wireless connectivity, distributed algorithms, and device-centric connectivity due to diversified mobile environments and IoT application characteristics. Since 6G is a multidisciplinary topic, this book will primarily focus on aspects of device characteristics, wireless

heterogeneity, traffic engineering, device-centric connectivity, and smartness of application.

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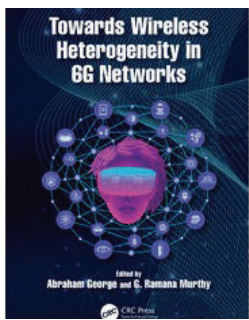
ULTRA-DENSE DEPLOYMENTS IN NEXT-GENERATION NETWORKS AND METAVERSE

Yarrabothu R. S., **Murthy G. R.**

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Abstract

Early in 2019, fifth-generation (5G) connectivity was commercially released, and it has since begun to permeate our daily lives. A breakthrough wireless transmission paradigm known as “the 6G” to unite the physical, digital, and human worlds to fulfill the UNSD 2030 goals is anticipated by 2030. One terabit per second data throughput and one microsecond latency are the goals of the 6G, which is 1,000 times faster than the 5G’s one millisecond latency. The 6G networks must employ higher frequencies than the 5G networks in the sub-THz frequency ranges to deliver significantly higher capacity and much lower latency due to their extraordinary ultra-high capacity and ultra-low latency. As the radio frequency increases, the coverage area will be shortened and it needs more network element deployments to support high-quality services, which leads to the densification of networks, ultimately ultra dense deployment of the networks will

happen. 6G ultra-dense networks will face several important challenges, which include interference, mobility, and cost. This chapter deliberates the various 6G data transmission innovations and their system architectures. It provides a comprehensive view of the requirements of 6G networks and the numerous enabling technologies. Especially, the ultra-dense deployments of the planned 6G networks with various scenarios and implementations are discussed in this chapter. This chapter also provides insights into key performance indicators of the 6G networks, its design challenges, and the research directions. Going forward, the metaverse, an embodied version of the internet, will replace the current mobile internet. In the metaverse, the users will start exploring the virtual worlds with the support of augmented reality and virtual reality. The metaverse is going to interconnect billions of users to create a shared world by merging

virtual and real worlds. However, due to limitations of available resources, computational power, and sensing devices, The metaverse is yet to realize its full potential of immersion, materialization, and interoperability. The major challenge for realizing the metaverse is addressing the issues of communication and

networking implementations and computational power. The fundamentals of the metaverse, its architecture, and the most recent research updates are first introduced in this chapter. To create seamless, ubiquitous, and embodied access to the metaverse.

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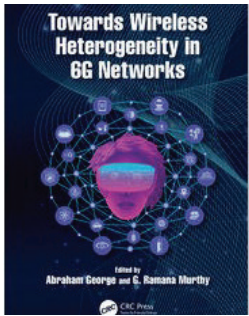
EDGE COMPUTING AND EDGE INTELLIGENCE

Itapu S., Murthy G. R., Krishna M.

Towards Wireless Heterogeneity in 6G Networks

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Abstract

For any advanced communication technologies to be commercially viable, it is a prerogative for the electromagnetic spectrum to act as a catalyst. For technological breakthroughs and fulfilling the demands of better utilization of such natural resources, novel communication schemes are proposed predominantly based on full-duplex (FD) and non-orthogonal multiple access (NOMA) technologies. Secrecy outage probability (SOP), throughput, data rate, and secrecy capacity are a few metrics that define an efficient sixth-generation (6G) wireless network. By integrating communication and information technologies, multi-access edge computing (MEC) intrinsically amalgamates the computing and caching capabilities in the users' immediate proximity, reducing the transmission delay and improving the resource utilization at the edge. As a further benefit, the emergence of MEC alleviates both the potential data transmission congestion of the

transport network (TN) as well as the data processing burden imposed on the core network (CN). Multi-access edge computing (MEC) is envisaged to be one technology capable of meeting the challenging requirements of 6G, as a benefit of providing computing and caching capabilities near the users. In addition, the conventional radio access network (RAN) needs restructuring to provide the necessary intelligence in all areas to meet the required network flexibility, full coverage, and massive access. In this respect, this chapter focuses on intelligent massive RAN architecture and key technologies fulfilling the requirements, in addition to open access MEC schemes to enhance reconfiguration of the disaggregated MEC functions and resources into customized edge instances.

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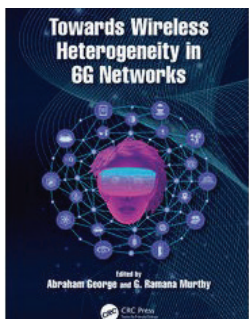


A NOVEL ENERGY-EFFICIENT OPTIMIZATION TECHNIQUE FOR INTELLIGENT TRANSPORTATION SYSTEMS

Rajak S., **Muniraj I.**, Selvaprabhu P., Rajamani V., Chinnadurai S.
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Abstract

In this chapter, we investigate the energy efficiency (EE) of the intelligent reflecting surface (IRS)–assisted intelligent transportation system (ITS) under both the Rayleigh and Nakagami-m fading conditions. Since its inception, ITS is growing rapidly, as it helps to provide seamless data transfer between vehicles, avail safe transportation, and avoid accidents. Nevertheless, the amount of data processed in ITS demands more transmission power. To address this, IRS blocks with several passive reflective elements have been recognized as a promising technology to reduce power consumption and enhance EE. In recent years, with the rapid increase in data usage, mobile users demand more transmission power. It is difficult to satisfy all users with limited transmission power; however, IRS has the ability to solve the power requirement problem by using the reflecting elements. In our chapter,

two different fading environments (i.e., Rayleigh, Nakagami-m) are adopted to meet the needs for the practical implementations of IRS-assisted ITS. In addition to this, the phase-shift optimization of each IRS element becomes a challenging task which also makes it difficult to estimate the channel for IRS-assisted ITS. To overcome the above challenges and optimize the EE, we develop a novel IRS element clustering method and a passive beamforming technique based on the desired location of the ITS. Furthermore, we analyze the EE and also spectral efficiency of the IRS-assisted ITS with multiple IRS blocks. Numerical results show that the multiple IRS blocks can significantly improve the ITS performance in terms of EE

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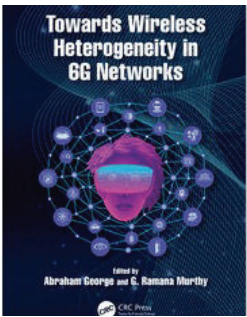
NETWORK VIRTUALIZATION

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Abstract

As the next generation of wireless networks, 6G aims to provide unprecedented levels of performance and connectivity, enabling transformative applications and services. Network virtualization, a concept that has gained prominence in previous network generations, continues to play a pivotal role in the development of 6G networks. In 6G, network virtualization expands beyond traditional network functions virtualization and software-defined networking to encompass novel techniques and paradigms. These include advanced network slicing, edge computing, artificial intelligence—

driven orchestration, and dynamic resource management. The integration of edge computing in 6G network virtualization enables the deployment of computation and storage resources closer to end users, reducing latency and improving real-time application performance. In this article, we further explore the concept of virtualization for future generations of wireless networks.

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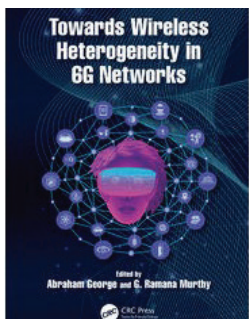
6G: OPPORTUNITIES AND CHALLENGES

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Abstract

The Internet of Everything will soon become a reality that is to be acknowledged to 6G, or sixth generation, mobile network research and development efforts. With the help of 6G, a brand-new network would be created that connects almost everyone and everything, including machines, objects, and devices. Additionally, 6G will put an emphasis on quality of experience to deliver rich experiences with 6G technology. Notably, it is crucial to envision the problems and difficulties associated with 6G technologies. Researchers have been investigating numerous alternatives to attain the needed 6G characteristics and, hence, it is imperative to consider a variety of research challenges, from hardware to

software capabilities. The major characteristics of 6G are THz-level data communication with a strong emphasis on short-range communications, network-inherent artificial intelligence, high network heterogeneity, and modified radio topology. From possibility to certainty, the main problems of 6G mobile communication technologies are 100% coverage, terahertz communication, optimal spectrum utilization, flexibility, redundancy and self-healing capability, and low-carbon transformation.

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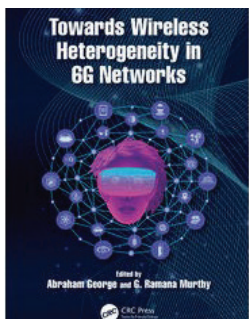


COGNITIVE RADIOS

Kiran N. C.*Towards Wireless Heterogeneity in 6G Networks*

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Abstract

Transmission and reception inside the electromagnetic radio spectrum is regulated by the government and requires a license to access this limited resource. The term "spectrum" refers to the range of radio-frequency waves that can be used for wireless communication. For use in things like GSM/HSPA, 3G, 4G, TV, Wi-Fi, defense communication, radio broadcasting, mobile satellites, aeronautical satellites, etc., these wavelengths are segmented into bands and distributed accordingly. While the electromagnetic spectrum as a whole is infinite, certain frequency ranges may become increasingly congested as a result of their fixed allocation. The most popular telecom operator bands are typically jam-packed, whereas less popular ones, such those used for TV and radio broadcasting, are relatively empty. This leads to inefficient spectrum use, which degrades signal quality in overcrowded areas while leaving much of the less crowded bands unused.

Spectrum holes are created when electromagnetic spectrum is underutilized. In cognitive radio, a transceiver can intelligently determine which channels are in use and which are free. After, the transceiver will swiftly switch to unoccupied channels while avoiding the ones that are already in use. These features allow for more efficient utilization of the radio spectrum. There will be less of an impact on other users. As a result of avoiding congested channels, spectrum efficiency is enhanced, and service quality is enhanced for end customers. Because of its scarcity, the wireless RF spectrum is typically assigned through a licensing system. Not all the allotted spectrum is put to good use. This results in some frequency ranges being overused while others sit empty. This inefficient use of spectrum reduces service quality and the amount of data that can be sent to users. There is a growing demand for this finite resource because of the proliferation of linked

gadgets. A smart, optimum, and equitable approach to using and allocating this resource is what cognitive radio is all about. The book chapter aims to share with the readers about the system of Cognitive radios, its varieties, how it works and all about the things to be known in it along with radio spectrum allocation. This books showers knowledge on Cognitive ratio for 6G Network where 6G must be more capable of

synchronization than 5G standard, 6G sub-centimeter geographical precision, millisecond position updates, and greatest amount of connectivity with less latency and plethora of applications in a challenging dynamic topology environment.

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Quartile – SCOPUS

Percentile –

Impact Factor –

SDG



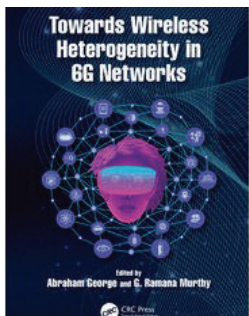
AI APPLICATIONS AT THE SCHEDULING AND RESOURCE ALLOCATION SCHEMES IN WEB MEDIUM

Shekhar R., Paul P.M., Jingle D. J.

Towards Wireless Heterogeneity in 6G Networks

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1st Edition

Towards Wireless Heterogeneity in 6G Networks

Edited By Abraham George, G Ramana Murthy

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Hardback

eBook

Abstract

Resources including business, informational, personal, and financial resources are required, with support from users, to maintain and implement the resource representations. Resource provisioning seeks to meet user needs by supplying the appropriate resources at the appropriate time at a lower cost. A service provider oversees supplying resources to all applications, and among the methods of resource management that they can employ are time-based, cost-based, on-demand, and bargain-based. These general approaches to resource provisioning and scheduling are based on recent developments in heterogeneity in 6G networks, including cloud computing, fog computing, and autonomic computing, to allocate and schedule resources while keeping an eye on service performance and adjusting as needed to meet the needs of cloud users. The proposed work increases resource allocation

through cost reduction and, as a result, increases the availability of the services at the device levels without compromising performance parameters such as availability, efficiency, authentication, and authorization. The wide metropolitan area network (6G Networks) wireless heterogeneity is presented in this chapter's technological problems. Memory, network performance, and other factors were heterogeneous in fog nodes. Here, the Load balancing algorithm's Priority ordering is applied to make use of wireless model properties. This chapter focuses on various load balancing and scheduling strategies along with a few machine learning techniques applied to fog nodes and clustering techniques.

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Quartile – SCOPUS

Percentile –

Impact Factor –

SDG



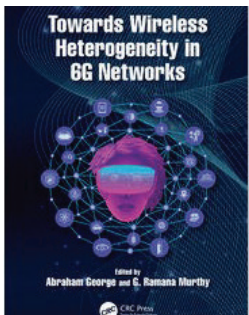
CENTRALIZED TRAFFIC ENGINEERING

Hussain M. W.

Towards Wireless Heterogeneity in 6G Networks

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1st Edition

Towards Wireless Heterogeneity in 6G Networks

Edited By Abraham George, G Ramana Murthy

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Abstract

5G technology is regarded as the pioneer technology handling the massive increase in the number of connections; however, with higher frequency demands and greater transmission rates used in smart cities, 6G comes into action because of the higher futuristic demands. Transportation is considered a fundamental pillar of the smart city, and it utilizes Internet of Vehicles (IoV). The higher stringent demands of network and computing in IoV are met with the help of novel paradigms of software-defined networking (SDN), cloud computing, fog computing, and mist computing.

Traffic engineering is the core issue in the centralized controller in SD-IoV (software-defined-IoV) because of the huge generation of data and stringent network requirements. This chapter discusses the use case of SD-IoV, which utilizes the myriad of computing paradigms, flexibility of SDN, and network function virtualization to improve performance and discusses some open issues.

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Quartile – SCOPUS

Percentile –

Impact Factor –

SDG



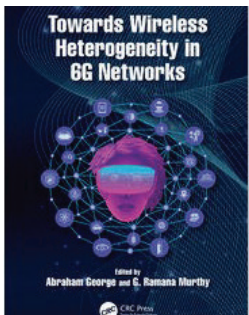
ARTIFICIAL INTELLIGENCE-BASED ENERGY EFFICIENCY MODELS IN GREEN COMMUNICATIONS TOWARDS 6G

Kumar N.A., Daniel R.

Towards Wireless Heterogeneity in 6G Networks

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1st Edition

Towards Wireless Heterogeneity in 6G Networks

Edited By Abraham George, G Ramana Murthy

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Abstract

The information sector has always aspired to use green communications to minimize energy consumption and use fewer fossil fuels. There seems to be a certain amount of network framework and several associated terminals will advance to enlarge exponentially in the modern 5G and forthcoming 6G regimes, resulting in increased energy costs. The focused advancement of green communications is becoming more and more crucial and essential. However, it is undeniable that the commitment to quality of service, encryption, adaptability, and cognition in 6G will become more demanding and diversified, which will provide challenges for energy-efficient advancement. The mechanism for compelling energy harvesting, which will be extensively used all along 6G, nevertheless makes the network maintenance and power regulation more complicated. To conquer these challenges and diminish human efforts. Artificial intelligence (AI) approaches are the most recognized for present-

day applications. Research has been conducted comprehensively in academia and industry to mitigate energy claims, and advance energy efficiency to regulate energy accumulation in different networking schemes. The critical factors for green communications are well addressed in this study, together with the associated research review on AI-positioned green communications. Emphasis is given to various methods and approaches employed in the green era to establish plans and enable greater efficiency. To curtail algorithm complications with high accuracy in forthcoming 6G, the analysis of machine learning techniques, including cutting-edge technologies like deep learning, conventional AI techniques, and analytical models were proposed future directions of research in AI models towards a green 6G.

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Quartile – Q3

Percentile – 49th

Impact Factor – 1.5

SDG



INTEGRATION OF RES AND AI FOR GRID DISTRIBUTION NETWORK ENERGY MANAGEMENT

Kaliappan K., Dinakar raj S., Bhavani R., Nagarajan N., **Londhe G.V.**, Bhima Raju P.S.D.

Electric Power Components and Systems

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Electric Power Components and Systems, Volume 52, Issue 11 (2024)

Abstract

In an era where sustainability and efficient resource utilization are paramount, optimizing energy management in grid distribution networks is a top priority. This research introduces a cutting-edge approach that harnesses the power of Renewable Energy Sources (RES), Artificial Intelligence (AI), Long Short-Term Memory (LSTM) networks, Quadratic Regression, and Demand Response mechanisms for Grid Distribution Network Energy Management. By fuzing these state-of-the-art technologies, we unlock the potential to revolutionize energy load forecasting with unprecedented precision and foresight. LSTM models, enriched with historical load data, weather conditions, and demand-response patterns, empower

us to anticipate grid requirements with exceptional accuracy. Our approach consistently achieves an average Mean Absolute Percentage Error (MAPE) below 5% and a Root Mean Square Error (RMSE) under 2% for load predictions with an overall grid distribution efficiency is 98%, surpassing conventional forecasting methodologies. Furthermore, the integration of demand response strategies results in a remarkable 20% peak shaving ratio, contributing to a 15% reduction in energy demand during high-demand periods. This research not only enhances smart grid technologies but also ushers in a more resilient, adaptive, and eco-friendly energy infrastructure for the future.

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Author keywords- artificial intelligence; demand response; energy management; Grid distribution network; load forecasting; long short-term memory; peak saving and sustainability; quadratic regression; renewable energy sources



ARTIFICIAL AND DECEITFUL FACES DETECTION USING MACHINE LEARNING [DETECCIÓN DE ROSTROS ARTIFICIALES Y ENGAÑOSOS MEDIANTE APRENDIZAJE AUTOMÁTICO]

Nachiappan B., Rajkumar N., Viji C., Mohanraj A.

Salud, Ciencia y Tecnología - Serie de Conferencias

Dr. Rajkumar N

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Abstract

Security certification is becoming popular for many applications, such as significant financial transactions. PIN and password authentication is the most common method of authentication. Due to the finite length of the password, the security level is low and can be easily damaged. Adding a new dimension to the sensing mode-driven state-of-the-art multi-modal boundary face recognition system of the image-based solutions. It combines the active complex visual features extracted

from the latest facial recognition model and uses a custom Convolution Neural Network issue facial authentications and extraction capabilities to ensure the safety of face recognition. The Echo function is dependent on the geometry and material of the face, not disguised by the pictures and videos, such as multi-modal design is easy to image-based face recognition system.

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Author keywords- Convolution Neural Network; Deep learning; Generative Adversarial Network; Image Forensics



AN EMPIRICAL BRIEF ANALYSIS OF NOVELISTIC APPROACHES FOR DETECTION OF BONE MARROW CANCER HEALTH MONITORING THROUGH DL MODEL

Reddy A., Ramaiah V. S., Ayyappa R. M. K., **Ghantasala G. S. P.**, Kurra M., Bathla P. *Proceedings - International Conference on Computing, Power, and Communication Technologies, IC2PCT 2024*

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5th 2024 IEEE International Conference on Computing, Power, and Communication Technologies (IC2PCT 2024)

Conference

online and in-person

9th to 10th February 2024
Greater Noida, Uttar Pradesh, India

Abstract

Deep learning, with its ability to inevitably learn hierarchical depictions from multifaceted data, has shown promise in medical applications. However, tuning the hyperparameters of deep learning models is a vital task, and metaheuristic optimization techniques offer effective results. The objective is to assess their efficiency in enhancing the recital of deep learning models for bone marrow tumor prophecy. The study employs an assorted dataset, encompassing several patient attributes and medicinal gages. Through a sequence of researches, we evaluate the convergence

speed, resolution excellence, and sturdiness of each metaheuristic tactic when coupled with a deep learning model. The outcomes acme the fortes and paleness of each process, providing valuable intuitions for investigators and experts in the field of medical data investigation. This study contributes to the optimization of deep learning models for bone marrow tumor prediction, targeting to advance diagnostic accurateness and sustenance healthcare authorities in making informed verdicts for persistent care.

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Author keywords- Bone Marrow Cancer Prediction; Deep learning model; Diagnostic Accuracy; Healthcare Decision Support; Hyperparameter Tuning; Medical Data Analysis; Metaheuristic Optimization.

Quartile – Q3

Percentile – 38th

Impact Factor –

SDG



GENDER EMPOWERMENT IN TRANSOCEANIC FEMININE FOLKLORE AND SHRINES: A KIN STUDY OF SIDDI WOMEN'S PARTICIPATION IN MAI MISRA WORSHIP IN GUJARAT, INDIA

Dey S., Maity T., Srivastava T.

Journal of International Women's Studies

Dr. Sayan Dey

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Department of Language & Literature,
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Abstract

The term Siddi refers to the African diaspora communities in India, who initially arrived in the 13th century with the Islamic invaders in Gujarat (then Sindh) as slaves, palace guards, traders, and musicians from the eastern parts of Africa, including Ethiopia, Zanzibar, Sudan, and Tanzania. In the 15th century, another group of Africans from South Africa, Zimbabwe, and Mozambique were brought to India by the Portuguese colonizers as slaves. The majority of the histories of the Siddi community are androcentric in nature, focusing on the contributions of African men and male spiritual figures towards the development of the Siddi

community in India. However, this paper offers a more diverse and deeper analysis that uncovers the role of women spiritual figures like Mai Misra, Makhaan Devi, and goddess Luxmi, and the role of Siddi women in the cultural and spiritual evolution of Siddi practices. This article analyzes how women spiritual figures and spiritual practices contribute to Siddi culture in Gujarat and offer Siddi women empowerment and agency. The thematic and theoretical arguments in this article are supported by a kin study on the patterns and intentions of Mai Misra worship in Gujarat.

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Author keywords- Cultural evolution; Dahmals; Gujar; Mai Misra; Siddi women; Spiritual practices; Women's empowerment; Zikrs



ACO-BASED HYPERPARAMETER TUNING OF A DL MODEL FOR LUNG CANCER PREDICTION

Dilip K., **Ghantasala G. S. P.**, Rao D. N., Rathee M., Bathla P.

Proceedings - International Conference on Computing, Power, and Communication Technologies, IC2PCT 2024

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5th 2024 IEEE International Conference on Computing, Power, and Communication Technologies (IC2PCT 2024)

Conference

online and in-person

9th to 10th February 2024
Greater Noida, Uttar Pradesh, India

Abstract

Machine learning models could provide human intelligence to perform complex tasks effectively. Among them, deep learning models have successfully been applied in several domains. However, that efficacy can be achieved only through effective design and training of deep learning models, which is a complex task to achieve and requires a lot of expertise in the domain. Finding optimal hyperparameter values is crucial for high-performance machine learning models, especially tree-based models and neural network-based models. Estimation of the parameters such as the weight of neural networks can be done using data sets and these are internal model parameters, however the hyperparameters such as number of layers, size of layers, learning rates etc. are external to the model. The

values of hyperparameters can either be determined intuitively by domain experts or by manually and randomly trying various possible configurations until we arrive at some acceptable values. Both have severe limitations for machine learning models with a lot of hyperparameters. Several attempts have been made in the direction of automatic hyperparameter optimization to save human efforts in designing machine learning models. Nature-inspired computing has gained a lot of popularity in this direction in recent years. In this paper, we have applied ant colony optimization, a nature-inspired approach for hyperparameter optimization for deep learning models for the prediction of lung cancer. © 2024 IEEE.

Author keywords- Ant colony optimization; combinatorial optimization; Deep learning model; Hyperparameter optimization; Metaheuristic

Quartile – Q1

Percentile – 75th

Impact Factor – 3.6

SDG



POLYVINYLIDENE FLUORIDE NANOCOMPOSITES AS PIEZOELECTRIC NANOGENERATOR: PROPERTIES, FABRICATION AND MARKET APPLICATIONS

Mukherjee A., Dasgupta Ghosh B., Ghosh A., **Roy S.***Advanced Engineering Materials*

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ADVANCED ENGINEERING MATERIALS

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Online ISSN: 1527-2648



Abstract

Depletion of fossil fuels and increase in pollution through chemical batteries trigger the development of self-powered devices based on flexible piezoelectric nanogenerators (PNG). Biocompatible piezoelectric polyvinylidene fluoride (PVDF) nanocomposites merged with piezoelectric fillers like ZnO, KNN, and BaTiO₃ reproduce amended piezoelectric current, contributing to the safe application as biosensors and flexible industrial devices. Optimized loading, precise selection, and varying the surface chemistry of piezoelectric filler, along with fabrication schemes comprising different structural configurations of composites, considerably influence its potential for application as an energy harvester. Also, optimized processing condition upgrades dielectric constant and energy storage density, and reduces dielectric loss, thereby plummeting energy

dissipation even after prolonged usage. Consequently, this article reviews the principles, properties, fabrication techniques, and market application of PVDF composites. A detailed relationship of significant electrical properties of PVDF composites with its fabrication methods and (piezoelectric parameters of fabricated PVDF composites with reported real-life wearable, implantable, and industrial-based portable piezoelectric devices are discussed in detail along with tabulated data for a clear understanding of structure–property relationship. Again, the market strategy for establishing flexible PVDF composite as a PNG has been discussed. A piece of in-depth knowledge is provided for procuring affordable futuristic large-scale PVDF-based nanogenerators exhibiting affordable market worth.

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Author keywords- challenges; electrical properties; fabrication; market applications; piezoelectric nanogenerators; PVDF composites

Quartile – SCOPUS

Percentile –

Impact Factor –

SDG



LATTICE-BASED CRYPTOGRAPHY AND NTRU: QUANTUM-RESISTANT ENCRYPTION ALGORITHMS

Nisha F., **Lenin J.**, Saravanan S. K., Rohit V. R., Selvam P. D., Rajmohan M.
ESIC 2024 - 4th International Conference on Emerging Systems and Intelligent Computing, Proceedings

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Emerging System & Intelligent Computing

Organised By:-



School of Computer Engineering, Kalinga Institute of Industrial
 Technology (KIIT) Deemed to be University

Abstract

The quantum-resistant qualities of various encryption methods, such as N-th degree Truncated polynomial Ring Units (NTRU) Encrypt, NTRU Sign, Ring-Lizard, and Kyber protocols are becoming more important in light of the ever-evolving nature of digital threats. An-depth analysis of the mathematical derivation of these algorithms, as well as a determination of their computing efficiency and resistance to quantum assaults is discussed in this paper. Techniques of the Ring-Lizard and Kyber algorithms to lattice-based encryption are

analyzed. The study gives an overview of quantum-resistant capabilities of these algorithms and their performance measures. Strengths and weaknesses of the NTRU Encrypt, NTRU Sign, Ring-Lizard, and Kyber algorithms are discussed. The results give useful insights for cybersecurity practitioners, academics, and policymakers, aiding them in making educated choices to protect digital infrastructures against quantum attacks.
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Author keywords- Cryptographic Security; Encryption Algorithms; Kyber Algorithm; Lattice-Based Cryptography; Nth degree TRUncated polynomial ring Encryption; Nth degree TRUncated polynomial ring Sign; Quantum Computing; Quantum-Resistant; Ring-Lizard Algorithm; Secure Communications

Quartile – SCOPUS

Percentile –

Impact Factor –

SDG



THE GLOBAL POP-UP NEWSROOM

Baines D., **Rajaram D.**

Global Journalism Collaborations: Worldwide Storytelling Projects in Higher Education

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Alliance School of Liberal Arts and Humanities,
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Global Journalism Collaborations: Worldwide Storytelling Projects in Higher Education (Routledge Focus on Journalism Studies)

Hardcover – Import, 23 February 2024

by Katherine C. Blair (Editor), Marion Coomey (Editor), Faith Sidlow (Editor)

Abstract

David Baines and Devadas Rajaram explain Global Pop-Up Newsroom, which was launched in 2013 by partners in the U.S. (California State University, Northridge), the UK (Newcastle University) and India (the Asian College of Journalism in Chennai). The project allows students to challenge taken-for-granted paradigms and professional and ideological boundaries and use mobile and social media to develop new modes of collaborative journalistic practice across borders and across cultures to explore issues of critical global concern. The twice-a-year iterations have addressed poverty, migration, food, human rights and, annually, International Women's

Day (IWD). They have engaged participants from some 20 countries and five continents and, as a laboratory of inquiry and innovation, attracted the attention of the UN, UNESCO, MIT and influenced journalism education around the world. In 2023, it was part of a Fulbright Project involving participation by a New York Times journalist in the Global Pop-Up Newsroom's IWD coverage.

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Quartile – Q1

Percentile – 83rd

Impact Factor – 2.7

SDG



IMAGE REGISTRATION FOR 3D MEDICAL IMAGES

Nair R.R., Babu T.

Advances in Computers

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Abstract

In order to maximize the similarity between the source images, image registration establishes the spatial connection over multiple sets of medical images. Three-dimensional images can be created using tomographic procedures including positron emission tomography, computed tomography, single-photon emission computed tomography, and magnetic resonance imaging (MRI). In general, patterns of geometry and picture gray values are used to register multimodal medical images. The most important step in 3D healthcare image synthesis is the image registration procedure. The goal of this chapter is to give a concise overview of 3D medical

image registration categorization algorithms, images employed in fusion, assessment measures, and various transformations, with an emphasis on the most current research advancements. The survey's goals are to clarify the fundamental ideas behind some of the terminology used in the literature, examine a few algorithms, provide a general framework for classifying and contrasting algorithms, and direct readers to the literature for more in-depth explanations. Thus, regardless of specific application areas, the chapter offers researchers working on image registration a comprehensive source of reference information.

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Author keywords- Average correlation coefficient; Average sum of squared differences; Image registration; Intensity variance; Mutual information

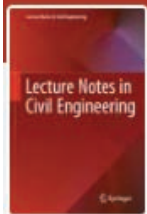
Quartile – Q4 | Percentile – 11th | Impact Factor – 0.15 | SDG

GIS APPLICATIONS AND MACHINE LEARNING APPROACHES IN CIVIL ENGINEERING

Asha Rani N. R., **Bal S.**, Inayathulla M.*Lecture Notes in Civil Engineering*

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Book series

Lecture Notes in Civil Engineering

Abstract

The positions of earth observations or features, along with the properties that go with them and the spatial relationships that exist between them, are displayed using GIS (Geographic Information Systems) data. GIS statistical analysis ranges greatly and includes modeling and projections, these are typically highly computational and sophisticated, particularly whenever huge datasets must be handled. Due to its considerable quickness, precision, automation, and consistency, approaches like machine learning (ML) have been proposed as an imminent revolution in the evaluation of GIS data as computing technologies develop. The flexibility in transferring data from a particular database to a different one is possibly the most significant advantage

when utilizing combined GIS and ML. The present study provides an overview of the ML models and their applications in infrastructure/urban development, health, flood prediction, groundwater detection and contamination, erosion modeling and prediction, landslide susceptibility prediction (LSP), LULCC modeling, managing forests and their resources, and biodiversity conservation using GIS tools. In addition to this, the study highlights several limitations associated with deploying different ML models in conjunction with GIS.

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Author keywords- Geographic Information Systems; Machine learning; Urban development



MODIFIED MARINE PREDATORS ALGORITHM WITH DEEP LEARNING-DRIVEN SECURITY SOLUTION FOR IOT-ASSISTED UAV NETWORKS

Babu S.A., Ranganath A., Goswami M. M., **Gnanaprakasam T.**, Ishak M. K.
IEEE Access

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IEEE Access

Multidisciplinary ; Rapid Review ; Open Access Journal

Abstract

Unmanned Aerial Vehicles (UAVs) are advanced technologies that are initially utilized for military apps like border monitoring and reconnaissance in opposed territories. Internet of Things (IoT) assisted UAV networks suggest the combination of IoT technology with UAVs to generate a networked system that improves the abilities and utility of UAVs for several apps. UAVs' inherent features namely quick deployment, high dynamicity, low deployment and operational costs, and line of sight communication motivated researchers in the IoT field to assume UAV's combination into IoT systems near the concept of UAV-assisted IoT systems. However, security concerns with UAVs are evolving as UAV nodes are suitable attractive targets for cyber threats because of extremely developing volumes and poor and weak inbuilt security. Therefore, this paper presents a Modified Marine Predators Algorithm with a

Deep Learning-Driven intrusion detection (MMPADL-ID) approach for IoT Assisted UAV Networks. The presented MMPADL-ID technique proposes to identify and classify the presence of intrusions in accomplishing security in IoT-assisted UAV networks. In the MMPADL-ID technique, the feature selection process is performed by the design of MMPA. In addition, the MMPADL-ID technique incorporates the Elman neural network (ENN) model for the recognition and classification of the intrusions. Furthermore, the honey badger algorithm (HBA) can be applied for the hyperparameter tuning of the ENN model and results in improved performance. The simulation value of the MMPADL-ID technique can be tested on benchmark datasets. An extensive comparative outcome reported the better solution of the MMPADL-ID algorithm with existing approaches for various aspects.
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Author keywords- deep learning; Internet of Things; Intrusion detection system; security; unmanned aerial vehicles

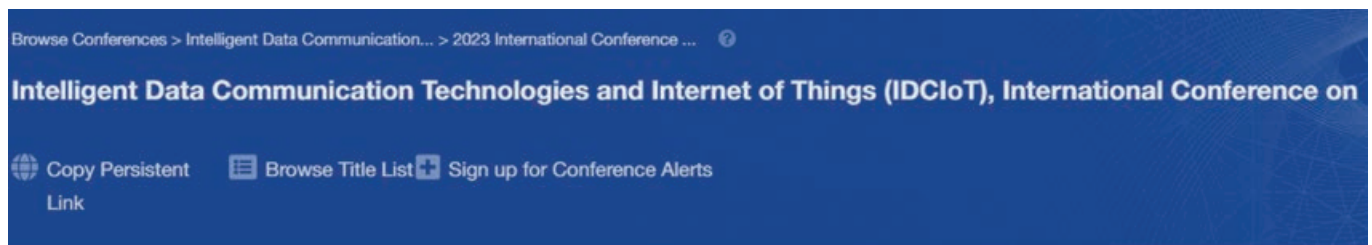


AN EFFECTIVE METHOD FOR MANAGING WASTE IN SMART CITIES BASED ON UNIFIED CNN AND LSTM APPROACH

Rajagopal R., Arjun Suryawanshi M., Akbar S., Chandra Sekhar Rao B., Patil H., Kalra G.
2nd International Conference on Intelligent Data Communication Technologies and Internet of Things, IDCIoT 2024

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Abstract

The government of India launched programs like Smart Cities and the Clean Development Mission to build eco-friendly and technologically advanced cities. Solid waste management (SWM) is becoming more important to these types of programs. Because of unplanned urbanization and the fast increase of urban populations (as a result of migration), the dynamics of urban waste are changing, making it extremely difficult for local authorities in urban areas to design an efficient SWM policy. The development of a long-term SWM plan that is in line with the goals of government initiatives requires an in-depth knowledge of the waste qualities, quantities, and present management processes.

Data preprocessing, feature extraction, and training the model ought to take precedence. Data from the characterization are linked to the entire magnitude of that influence for the relevant area and period in this step of preprocessing, which is where normalization is applied. It employs principal component analysis (PCA) for feature extraction. Feature selection is an essential first step in training unified CNN-LSTM models. Compared to the current front-runners, CNN and LSTM, the proposed technique performs far better. The accuracy was increased by 95.85% when the method was used.

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Author keywords- Principal Component Analysis (PCA); Solid waste management (SWM); Waste Treatment



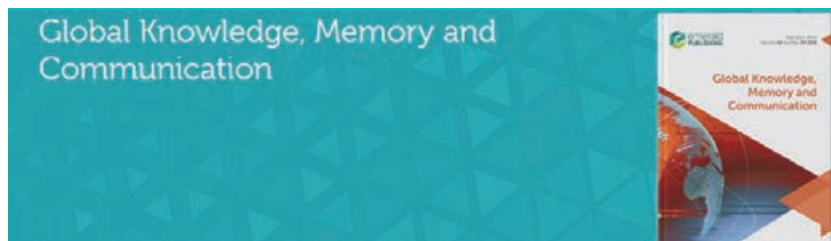
EFFECTIVENESS OF DIGITAL RHETORIC PERSUASION ON GENZ CONSUMER PURCHASING DECISIONS

Gupta H., Parmar B. J.

Global Knowledge, Memory and Communication

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Alliance University, Bangalore, INDIA



Abstract

Purpose: The study aims to analyze the effectiveness of digital rhetoric persuasion on GenZ purchase decision. Digital rhetoric (DR) is an art of persuasion used in social media communication to shape and influence the course of an individual. It has been used in social media advertisements (SMAs) to increase its perceived effectiveness. GenZ consumers are more vibrant than previous generations' consumers because of high levels of literacy and capacity to adapt to new technology. Therefore, understanding the effects of rhetorical support decisions to act on and mold consumers' reasoning and judgment is particularly significant in relation to GenZ purchasing decisions and the rhetorical persuasive methods. Concurrently, the moderating effect of generation cohort theory also needs to be examined. **Design/methodology/approach:** The threshold model for consumers' purchase decisions in the form of logistic regression has been applied to examine the impact

of DR through SMAs on the purchase intention (PI) of GenZ consumers. Simultaneously, the moderating effect of generation cohort theory is being examined by comparative analysis of different generations' PI moderation by DR effect. **Findings:** The results of the current study reveal that DR via SMAs has a positive and significant influence on GenZ consumers' PI, whereas other older generation consumers do not get similarly affected by the same. **Originality/value:** In an emerging economy like India, where 30% of the population belongs to the GenZ category and the digital advertising industry is growing by double digits, the present study takes a novel approach to examine the impact of DR via SMAs on GenZ consumers' PI. Concurrently, it also provides an understanding of the moderation effect of generation cohort theory on perceived effectiveness of DR.

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Author keywords- Advertisement effectiveness; Digital rhetoric; GenZ; Logistic regression; Purchase intention; Social-media advertisement



DAMPING CAPABILITIES OF VISCOELASTIC COMPOSITES FOR ACTIVE/PASSIVE CONSTRAINED LAYER DAMPING OF THE PLATE VIBRATION: A COMPARATIVE STUDY

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Journal of Vibration Engineering & Technologies

Publishing model
Hybrid

Abstract

Purpose: This work presents the comparative damping performance of conventional viscoelastic material (VEM), 0–3 viscoelastic composite (VEC), and viscoelastic particulate composite (VEPC) damping layers in the active/passive constrained layer damping mechanism for plate vibration. **Methods:** In the present study, passive and active–passive damping mechanisms, namely constrained layer damping (CLD) and active constrained layer damping (ACLD) are analysed to control the plate vibration. The CLD mechanism is achieved in both symmetric and asymmetric sandwich plate configurations where damping material lies at the core. In contrast, for the ACLD mechanism, the top face layer in the asymmetric sandwich plate is replaced by an extensional-mode piezoelectric actuator. A closed-loop finite element (FE) model is first derived for the damping analysis of sandwich plates following the layer-wise first-order shear deformation theory and velocity-feedback control strategy for the ACLD mechanism. Subsequently, the utilization

of the same FE model for damping analysis of the CLD mechanism of symmetric and asymmetric sandwich plates is demonstrated for each of the three kinds of damping layers. **Results and Conclusions:** The modal loss factors and frequency responses for each of the three kinds of damping layers in CLD/ACLD treated plates are estimated for the comparative study. The results reveal that damping performance of 0–3 VEC or VEPC layer in CLD/ACLD mechanism is significantly more than that for the conventional VEM layer. The VEPC layer may be used for the CLD mechanism in a symmetric sandwich configuration, while 0–3 VEC is a suitable one for the same damping mechanism through an asymmetric sandwich configuration. Moreover, 0–3 VEC may also be more suitable for the ACLD mechanism due to the magnification in active–passive damping performance compared to VEPC.

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Author keywords- Active–passive hybrid damping; Constrained layer damping; Passive damping; Sandwich plates; Viscoelastic damping layer



MATHEMATICAL MODELS FOR THE SINGLE-CHANNEL AND MULTI-CHANNEL PMU ALLOCATION PROBLEM AND THEIR SOLUTION ALGORITHMS

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algorithms

Abstract

Phasor measurement units (PMUs) are deployed at power grid nodes around the transmission grid, determining precise power system monitoring conditions. In real life, it is not realistic to place a PMU at every power grid node; thus, the lowest PMU number is optimally selected for the full observation of the entire network. In this study, the PMU placement model is reconsidered, taking into account single- and multi-capacity placement models rather than the well-studied PMU placement model with an unrestricted number of channels. A restricted number of channels per monitoring device is used, instead of supposing that a PMU is able to observe all incident buses through the transmission connectivity lines. The optimization models are declared closely to the power dominating set and minimum edge cover problem in graph theory. These discrete optimization problems

are directly related with the minimum set covering problem. Initially, the allocation model is declared as a constrained mixed-integer linear program implemented by mathematical and stochastic algorithms. Then, the (Formula presented.) integer linear problem is reformulated into a non-convex constraint program to find optimality. The mathematical models are solved either in binary form or in the continuous domain using specialized optimization libraries, and are all implemented in YALMIP software in conjunction with MATLAB. Mixed-integer linear solvers, nonlinear programming solvers, and heuristic algorithms are utilized in the aforementioned software packages to locate the global solution for each instance solved in this application, which considers the transformation of the existing power grids to smart grids.

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Author keywords- algorithms; binary-integer programming; channel limit capacity; multi-channel PMUs; nonlinear programming; observability; optimal PMU placement (OPP); optimization; phasor measurement unit (PMU); sufficient conditions for optimality



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