ALLIANCE UNIVERSITY
CENTRE for RESEARCH

# RESEARCH PUBLICATIONS

JUNE 2024

# RESEARCH PUBLICATIONS

JUNE 2024

" Research is creating new knowledge. "

**Neil Armstrong**

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

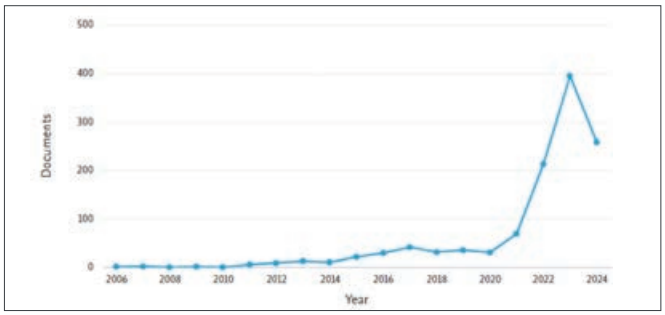
**Albert Einstein**

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

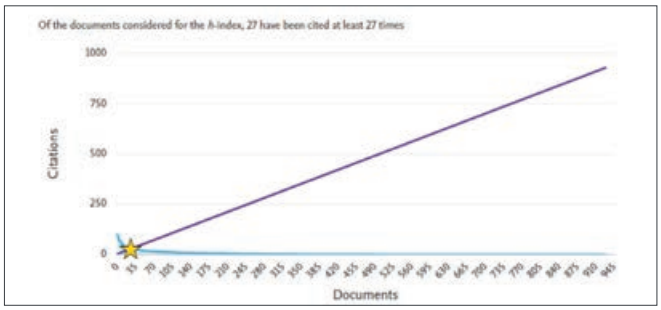
**Zora Neale Hurston**

1,162 document results

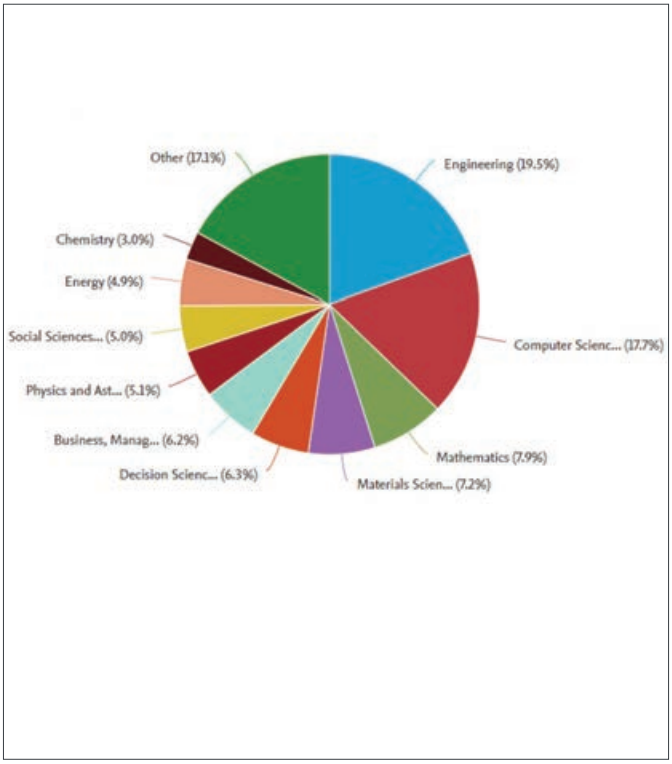
## Documents by Year




## These documents *h*-index




## Documents by Subject Area



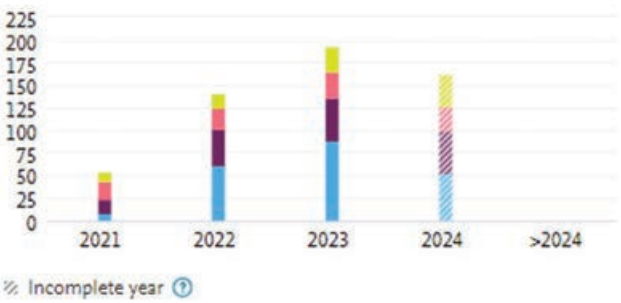

## Summary

| 928 | 406 | 2982 | 3.2 | 2.82 |
|---|---|---|---|---|
| Scholarly Output | Authors | Citation Count | Citations per Publication | Field-Weighted Citation Impact |

**22.1%**
All Open Access

## Publication by Journal Quartile

Share of publications per Journal quartile by CiteScore Percentile




% Incomplete year

| Quartiles | Publications | Publication share (%) |
|---|---|---|
| Q1 (top 25%) | 210 | 38.2 |
| Q2 (26% - 50%) | 151 | 27.5 |
| Q3 (51% - 75%) | 99 | 18.0 |
| Q4 (76% - 100%) | 90 | 16.4 |

| Cumulative shares | Publications | Publication share (%) |
|---|---|---|
| Q1 to Q2 (top 50%) | 361 | 65.6 |
| Q1 to Q3 (top 75%) | 460 | 83.6 |

## Geographical Collaboration Overall

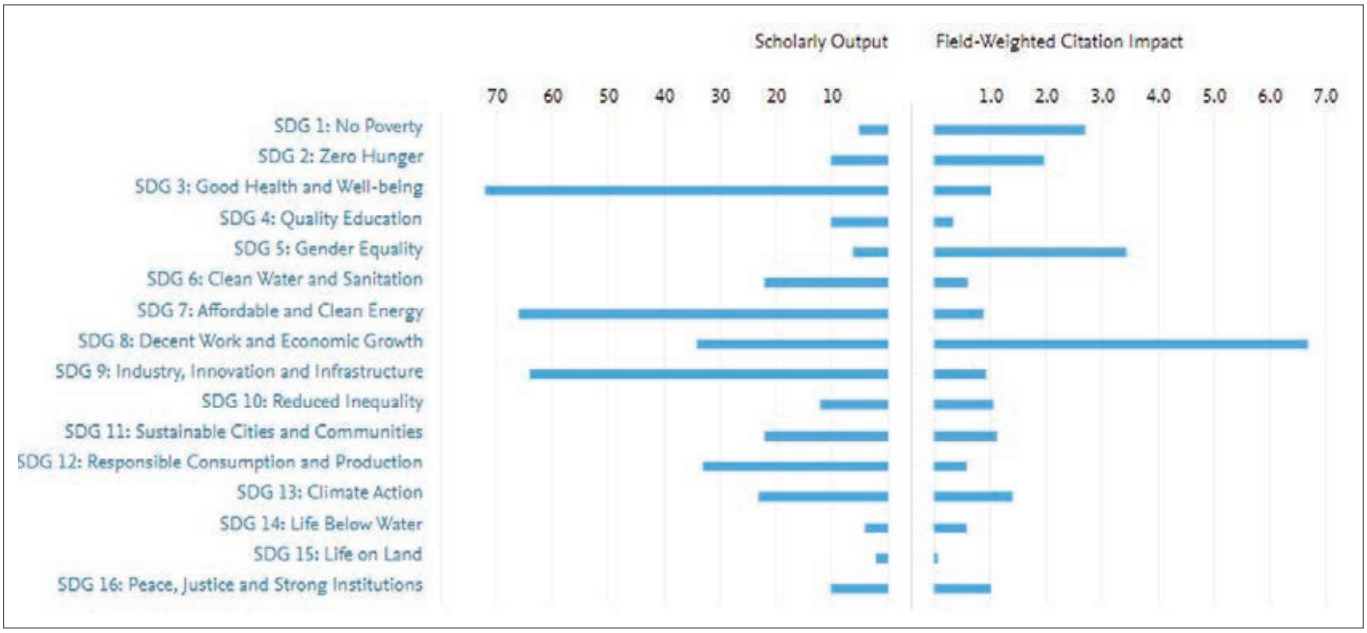
Overall

Metric guidance

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 | 36.2% | 336 | 1,785 | 5.3 | 2.98 |
| Only national collaboration | 44.5% | 413 | 1,056 | 2.6 | 3.68 |
| Only institutional collaboration | 12.0% | 111 | 86 | 0.8 | 0.57 |
| Single authorship (no collaboration) | 7.3% | 68 | 55 | 0.8 | 0.47 |

## Publication by SDG




## Subject Areas

Segment size represents relative publication share per Subject Area. Note that a publication can be mapped to multiple Subject Areas.

# 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** – Q2 | **Percentile** – 57th | **Impact Factor** – | SDG 08 DECENT WORK AND ECONOMIC GROWTH

# MEDIATING EFFECT OF DIGITAL LITERACY BETWEEN ATTITUDE TOWARDS AI AND JOB INSECURITY AMONG HR PROFESSIONALS

Akash N.R., Dhiksha J., Chhotray A.S., Vaasanthi R.S., Philip S., **Babu N.C.K.**, Lokesh,
*Studies in Systems, Decision and Control , Volume 516, Pages 31 - 442024*

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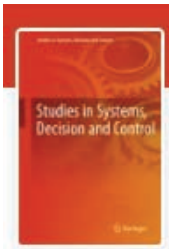

Book series
Studies in Systems, Decision and Control

## Abstract

As businesses continue to incorporate technologies that use AI into a variety of business processes, the connection between employee attitudes towards AI and job insecurity has attracted some attention. However, a critical aspect that has not been covered in the existing literature is the potential mediating role of digital literacy in shaping this relationship. This study investigates the interplay between attitudes towards AI, job insecurity, and digital literacy among HR employees through an online survey. Utilizing established scales, including Attitudes Towards AI (ATAI), Job Insecurity, and Digital Literacy, significant results reveal a substantial mediated relationship. Finding also states a significant impact of attitudes towards AI on job insecurity. Acceptance AI attitude indirectly reduce job insecurity through heightened digital literacy. Also, the pivotal role of digital literacy as a mediator, emphasizing its importance in alleviating job insecurity concerns amidst AI integration. These findings offer practical insights for organizations seeking to foster employee confidence in AI-rich workplaces.


**Author keywords-** Attitude towards AI; Digital literacy; HR employees; Job insecurity

**Quartile** – Q3 | **Percentile** – 49th | **Impact Factor** – 1.3 | SDG

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

# DESIGN AND ANALYSIS OF 1-BIT HYBRID FULL ADDER CELLS FOR FAST COMPUTATION

Anand A., **Dhariwal S.**, Lamba V.K., Kassa S.,
*International Journal of Electronics 2024*

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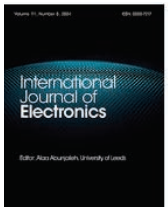


International Journal of Electronics, Volume 111, Issue 8 (2024)

Volume 111, 2024 | Vol 110, 2023 | Vol 109, 2022 | See all volumes and iss

## Abstract

This research article introduces a 1-bit Full Adder (FA) cell comprising 20 transistors, employing Gate Diffusion Input (GDI) and transmission gate logic. The FA cell is segmented into four modules: the first module encompasses an AND-OR module, followed by a module housing a Multiplexer (MUX) based on transmission gates for Carry Output generation. The remaining two modules are XOR gates dedicated to Sum Output generation. Simulation of the proposed design is conducted on the 45 nm technology node using Cadence Virtuoso and its GPDK 45 nm library. To validate the performance of the proposed design, it is compared against existing full adders. Performance parameters such as power consumption, delay and Power Delay Product (PDP) demonstrate superior performance across voltages ranging from 0.8 V–1.2 V.



**Author keywords-** Cadence Virtuoso; gate diffusion input; Hybrid FA; pass transistor logic; transmission gates

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – | SDG

# SMART UNDERGROUND CABLE FAULT DETECTION SYSTEM

Ankith M., Sujay V., Hemanth V., **Swetha Shekarappa G.**, Rajat V.

*Lecture Notes in Electrical Engineering.*

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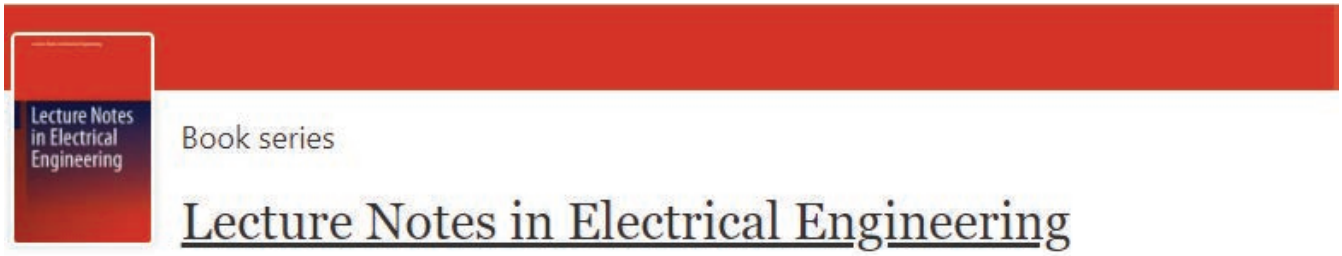


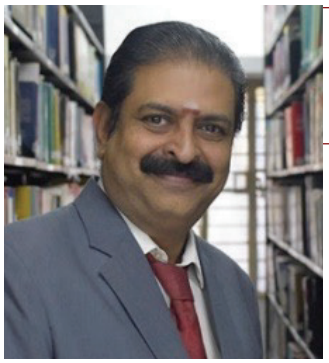

## Abstract

In the heart of bustling urban landscapes, the critical arteries of power distribution remain hidden beneath the earth's surface, connecting substations to vital endpoints. However, the reliability of these subterranean transmission lines can be compromised by elusive issues that are challenging to detect and rectify promptly. Our mission is to revolutionize our approach to this problem by harnessing the innovative potential of the Internet of Things (IoT). Our primary goal is to develop a robust system capable of precisely locating defects or anomalies within kilometers-long underground power transmission cables, starting from the substation. The motivation behind this endeavor is to ensure the uninterrupted flow of electricity in major cities, safeguarding against potential power outages and disruptions with far-reaching societal consequences. Our IoT innovation strategically deploys sensors along these critical underground routes. These sensors continuously monitor the cable's condition. When an issue arises, the system swiftly identifies the fault's location. The resulting data is relayed in real-time to our website and displayed on an LCD screen, offering immediate visibility to operators and maintenance personnel. The societal impact of this initiative is profound. Firstly, it bolsters the resilience of urban infrastructure by minimizing downtime and enhancing the power grid's overall reliability. This ensures that essential services, including hospitals and public transportation, continue to operate seamlessly, even during adverse conditions. Secondly, by proactively identifying and addressing cable faults, our system contributes to reducing energy wastage and carbon emissions. This aligns with the global drive toward sustainable practices and energy efficiency. Our project draws inspiration from the fundamental principles of Ohm's law. It utilizes low DC voltage and precise resistance measurements to accurately locate cable faults. By harnessing IoT technology, we

aim to transform the management of underground power transmission cables, ultimately creating a more resilient and sustainable urban environment. With this innovative solution, we empower cities to thrive, adapt, and embrace a greener and more dependable energy future, safeguarding the vitality of urban life.


**Author keywords-** 230 V power supply; ADC; Microcontroller; Relays; Underground cable fault

**Quartile** – Q2 | **Percentile** – 66th | **Impact Factor** – 2.7 | SDG



# CHALLENGES FACED BY WOMEN ENTREPRENEURS IN RURAL INDIA: A MIXED-METHOD STUDY ON PERCEPTION

**Aravamudhan, Varadaraj,** Sivakumar K., Vishnu C.R., Mohanasundaram K.,

*International Journal of Entrepreneurship and Innovation, 2024*

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Alliance University, Bangalore, India.

**Editor in Chief**
Dr. M.A. Dorgham

**ISSN online**
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6 issues per year

## Abstract

Women entrepreneurs confront myriad issues related to economic, social, familial, market environments, and regulatory challenges in the rural Indian setting. These issues must be identified and characterized for designing policies/strategies to promote women's entrepreneurship. Accordingly, the key objective of this research is to identify and discuss challenges faced by women entrepreneurs in India, with a particular focus on rural areas of Rajasthan. Furthermore, the present research also investigates the inter-relationships between the challenges to determine the impact potential of individual challenges and issues. A mixed-method approach is adopted in the present article. Initially, a questionnaire-based survey was conducted to identify significant challenges and barriers confronted by women entrepreneurs in the selected region. A total of 120 responses were collected based on a purposive sampling procedure. The significant issues are further characterized using Interpretive Structural Modeling and MICMAC analysis. The research discloses that a lack of cooperation from male family members, weak bargaining power, self-esteem issues, psychological barriers, lack of government support, absence of adequate regulatory policies, problems in attracting customers, corruption, and other market behaviors as the major challenges faced by women entrepreneurs. The article also reports the impact potential of these challenges through a hierarchical model.


**Author keywords-** interpretive structural modeling; mixed-method; regulatory challenges; rural Rajasthan; social barriers; women entrepreneurs

**Quartile** – Q1 | **Percentile** – 90th | **Impact Factor** – 0.24 | SDG

03 GOOD HEALTH AND WELL-BEING
04 QUALITY EDUCATION
05 GENDER EQUALITY

# PLEASURE, 'EDUCATION', AND EROTISM: AN INTERSECTIONAL READING OF GENDER, SEX, AND SEXUALITY IN AGENTS OF ISHQ ZINES

Bagchi S.S., Kuriakose L.J

*Journal of Graphic Novels and Comics 2024*

**Snata Bagchi**

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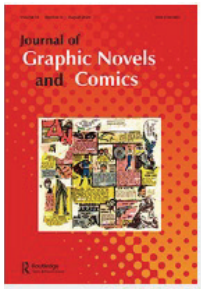


**Journal of Graphic Novels and Comics**

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Publishes research on all aspects of the graphic novel, comic strip and comic book focusing primarily, but not exclusively, on the 20th and 21st centuries.

## Abstract

Situated at the crossroads of scholarly inquiry in gender studies and counter-cultural studies, this paper analyses how the two zines by the multimodal platform Agents of Ishq viz. What is normal? AKA Heteronormativity Kya Hai? and The Political Power of Pleasure, 'perform' as a space for sexuality-studies sensitisation and create a platform for inclusive and intersectional sex education. The use of handmade illustrations, intermingled languages, 'cut-and-paste' collage style aesthetic, nonlinear narrative, and nonconformist content pose compelling questions related to erotic subcultures, cultural taboos, heteronormativity, and discrimination. The analysis focuses on how the visual-verbal format of zines contribute to the need for narratives that focus on differences in experiences, instead of imposing single-axis ideas and representations, to explore how these texts represent the voices that lie at intersections by opposing homogenisation of identities and cultures. It highlights the need to acknowledge the intersectionality of sexual identities to practice a more inclusive and sensitised social activism.



**Author keywords-** Gender; inclusivity in education; queer; sexuality; visual narratives; Zines

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

07 AFFORDABLE AND CLEAN ENERGY

08 DECENT WORK AND ECONOMIC GROWTH

# ANALYZING OPEN INTEREST: A VIBRANT APPROACH TO PREDICT STOCK MARKET OPERATOR'S MOVEMENT

**Bakshi A.**

*Deep Learning Tools for Predicting Stock Market Movements Pages 61 - 871*

*January 2024*

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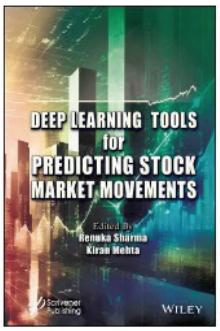


**Deep Learning Tools for Predicting Stock Market Movements**

Renuka Sharma (Editor), Kiran Mehta (Editor)

ISBN: 978-1-394-21431-0 | April 2024 | 496 pages

| E-Book | Print | O-Book |
|---|---|---|
| Starting at $180.00 | Starting at $225.00 | |

## Abstract

Open interest in the derivative market is the total number of outstanding or open contracts that have not yet been settled or squared off. It increases when new entrants trade with each other in the future & options (F&O) market and decreases when existing position holders square off their positions. Tracking changes in spot price, open interest, and delivery data can provide insights into operators' intentions. However, examining cumulative open interest and confirming the analysis with technical charts are important. In future contracts, open interest should be treated as cumulative, whereas in options, it should be counted as an aggregate. The highest open interest on the call side indicates the resistance level, whereas the highest open interest on the put side indicates the support level. A put-call ratio of more than 1.1 is bullish, whereas less than 0.9 is bearish. Checking the build-up of open interest in strike prices can help recognize anomalies or imbalances in underlying assets. Computing the critical price or weighted average price can help decode the buyer or seller in the option chain. An analysis of data for a stock listed in both the cash market and the F&O segment over the last 3 months, along with technical chart analysis, can help traders and investors make informed decisions. However, it is recommended to have a basic understanding of F&O contracts to fully comprehend the concepts and strategies discussed.



**Author keywords-** bearishness; bullishness; cumulative open interest; future & options; Open interest; option chain; predict stock market; put-call ratio

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG 07 AFFORDABLE AND CLEAN ENERGY

# HIGH HEELS ARE NO MORE AN ACCESSORY OF FASHION FOR WOMEN- A STUDY UNREVEALING THE HEALTH EFFECTS OF WEARING HIGH HEELS

Banu S.B., Akhtar S.W., Arshad S., Banu S.R., Chandini S., **Ghantasala G.S.P.**
*Proceedings of the 2024 10th International Conference on Communication and Signal Processing, ICCSP 2024Pages 406 - 4102024*

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## Abstract

The high heels are one of the most loved accessories of women. High heels have marked their entry not only into the fashion industry but also into the corporate sector as a symbol of must-wear accessories with corporate dressing. High heels are surely the most loved accessories of women but it is also a fact that high heels are the cause of foot pain and many other health conditions of foot health. The study is conducted with the intent to know whether wearing high heels is affecting the foot health of women or not. The study is conducted between the two controlled groups. each group consists of 125 women in each. One group represents women wearing high heels on a regular basis and the other group represents women not wearing high heels on a regular basis. The study reveals that the women who are not wearing high heels foot health is much better compared to the women who are wearing high heels.


**Author keywords-** Fashion Accessories; Foot Health; Foot Pain; High Heels; Women's Foot Health

**Quartile** – Q1 | **Percentile** – 98th | **Impact Factor** – 8.5 | SDG

11 SUSTAINABLE CITIES AND COMMUNITIES

# FEATURE FUSION-BASED FOOD PROTEIN SUBCELLULAR PREDICTION FOR DRUG COMPOSITION

Byeon H., Shabaz M., Ramesh J.V.N., Dutta A.K., Vijay R., Soni M., **Patni J.C.**, Rusho M.A., Singh P.P.

*Food Chemistry Volume 4541 October 2024 Article number 139747*

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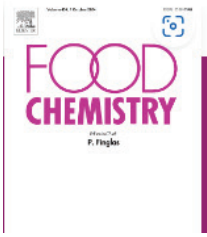


Food Chemistry
Supports open access

## Abstract

The structure and function of dietary proteins, as well as their subcellular prediction, are critical for designing and developing new drug compositions and understanding the pathophysiology of certain diseases. As a remedy, we provide a subcellular localization method based on feature fusion and clustering for dietary proteins. Additionally, an enhanced PseAAC (Pseudo-amino acid composition) method is suggested, which builds upon the conventional PseAAC. The study initially builds a novel model of representing the food protein sequence by integrating autocorrelation, chi density, and improved PseAAC to better convey information about the food protein sequence. After that, the dimensionality of the fused feature vectors is reduced by using principal component analysis. With prediction accuracies of 99.24% in the Gram-positive dataset and 95.33% in the Gram-negative dataset, respectively, the experimental findings demonstrate the practicability and efficacy of the proposed approach. This paper is basically exploring pseudo-amino acid composition of not any clinical aspect but exploring a pharmaceutical aspect for drug repositioning.


**Author keywords-** Drug composition; Food protein; Fusion of feature; Principal component analysis; PseAAC; Subcellular prediction of proteins

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

**Quartile** – Q1 | **Percentile** – 95th | **Impact Factor** – 5.5

# PROGRESS IN FOOD PACKAGING APPLICATIONS OF BIOPOLYMER-NANOMETAL COMPOSITES – A COMPREHENSIVE REVIEW

Chandrababu V., **Parameswaranpillai J.**, Gopi J.A., Pathak C., Midhun Dominic C.D., Feng N.L., Krishnasamy S., Muthukumar C., Hameed N., Ganguly S. Mr. Sayantan Mukherjee

*Biomaterials Advances Volume 162 Article number 213921*

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Biomaterials Advances 17.8 CiteScore

## Abstract

Eco-friendly nanotechnology-enabled biopolymers are one of the novel concepts of packaging materials to substitute traditional synthetic polymers and their composites. This article succinctly reviews the recent developments of introducing additional functionalities to biopolymers using metal and metal oxide nanoparticles. The functionality of metal nanoparticles such as silver, zinc oxide, titanium dioxide, copper oxide, gold, and magnesium oxide, as food packaging materials were discussed. The addition of nanoparticles in biopolymers improves mechanical properties, gas barrier properties, durability, temperature stability, moisture stability, antimicrobial activity, antioxidant property, and UV absorbance and can prevent the presence of ethylene and oxygen, hence extending the shelf life of foodstuffs. Other than this, the functional activity of these biopolymer composite films helps them to act like smart or intelligent packaging. The selection of metal nanoparticles, particle migration, toxicological effect, and potential future scope in the food packaging industry are also reviewed.


**Author keywords-** Biodegradable; Biopolymers; Composites; Food packaging films; Metal nanoparticles; Smart packaging

**Quartile** – SCOPUS | **Percentile** – NA | **Impact Factor** – NA | SDG 06 CLEAN WATER AND SANITATION

# METAL/METAL OXIDE NANOPARTICLES MODIFIED POLYMERIC COMPOSITE MEMBRANES FOR WATER TREATMENT

Chandrashekar A., Hegde M., **Gopi J.A.**, Prabhu N., Gopakumar D.A., George J.J., Midhun D.C.D., Parameswaranpillai J.

*Nanomaterials for Air and Water Purification Pages 347 - 371 1 January 2024*

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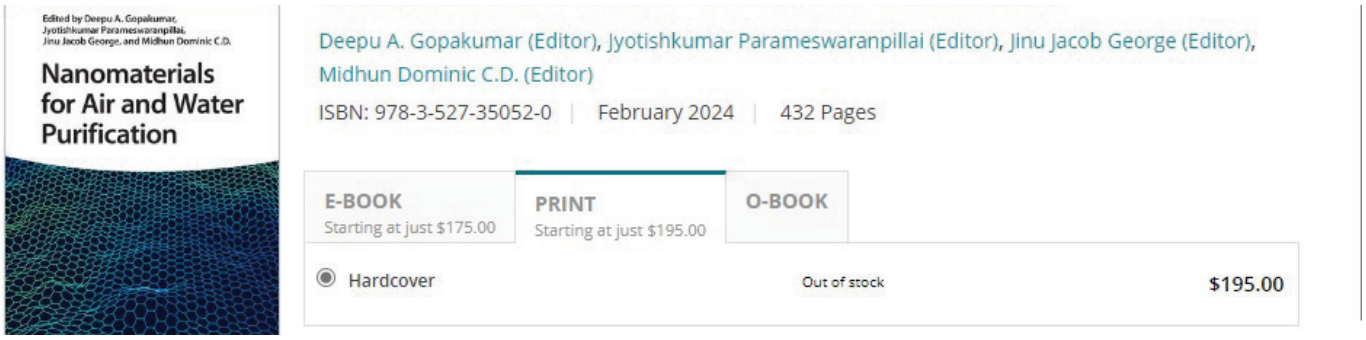


## Abstract

The development of novel water treatment technologies is a thriving area of research nowadays. Polymeric membranes modified with nanomaterials have emerged as promising solutions for high-performance water purification. The incorporation of metal and metal oxide nanoparticles induces antifouling properties, antimicrobial properties, self-cleaning, photocatalytic activity, mechanical strength, etc., in the polymeric membranes. This chapter discusses the major metal and metal oxide nanoparticles used for the preparation of polymeric nanocomposite membranes for water purification. This chapter also summarizes the fabrication and development of various polymeric membranes with metal/metal oxide nanoparticles with antifouling, antibacterial, photocatalytic, and adsorption properties.

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

03 GOOD HEALTH AND WELL-BEING

07 AFFORDABLE AND CLEAN ENERGY

# REAL-TIME UV RADIATION MONITORING AND ANALYSIS WITH ARDUINO AND MATLAB FOR ENHANCED EXPOSURE TRACKING

Dankan Gowda V., Ponnambalam N., Sheela S.K., **Reddy H.G.G.**, Sajjanara V.A., Raghavendra K. 2nd International

*Conference on Artificial Intelligence and Machine Learning Applications: Healthcare and Internet of Things, AIMLA 2024*

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**Artificial Intelligence and Machine Learning Applications Theme: Healthcare and Internet of Things (AIMLA), International Conference on**

## Abstract

This study a new system of real-time monitoring and analysing UV radiation using an integrated method is explored. It combines Arduino and MATLAB technologies for data collection and subsequent data analysis respectively. The main purpose of this work is to summarize the roles of UV radiation levels, their changes in space and time, and the efficiency of different sunscreen methods. By developing a UV sensor network along with a MATLAB algorithm, the following work is able to provide holistic views of any given area's UV radiation levels and possible health effects of UV exposure. The research methodology we adopted includes the acquisition of UV radiation information from various time and location frames, which is next followed by an analytical phase in which we evaluate the effectiveness of photoprotection tools including sunscreen, clothing, and shade. In other words, the research examines the association between the exposure of UV and the possibility of obtaining skin damage, insisting on the use of protective measures. Integration of a UV radiation monitoring and alerting system into the app by providing the users with real-time information on UV levels and dispatching notifications accordingly is undoubtedly one of the crucial aspects of this research. These alerts are aimed at reminding the users to apply protective measures that they deem suitable. The outcomes of the research unveils a significant daily and geographical variance in UV exposure, identifying the peak time and places of major risk. On the one hand, comparative analysis highlights practical benefits obtained after photoprotection methods application; on the other hand, data show explicitly that risk of increased damage skin damage increases with exposure of the skin to UV. The reaction of the users is the next important indicator of the alert system which strengthens its purpose in informing the public and guide them write the right actions to do to avoid this danger.



**Author keywords-** Arduino; Data Visualization; MATLAB; Real-Time Monitoring; Skin Damage Risk; Ultraviolet (UV) Radiation; UV Exposure Analysis; UVIndex Alerts

**Quartile** – Q2 | **Percentile** – 63rd | **Impact Factor** – 2.6 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

# QUANTUM SIMULATION OF NON-BORN-OPPENHEIMER DYNAMICS IN MOLECULAR SYSTEMS BY PATH INTEGRALS

**Datta S.**

*International Journal of Modern Physics B Open AccessVolume 38, Issue 23*

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**International Journal of Modern Physics B**
**Condensed Matter Physics; Statistical Physics; Atomic, Molecular and Optical Physics**
ISSN (print): 0217-9792 | ISSN (online): 1793-6578
Supports Open Access

## Abstract

A numerical algorithm based on the probabilistic path integral approach for solving Schrödinger equation has been devised to treat molecular systems without Born-Oppenheimer approximation in the nonrelativistic limit at zero temperature as an alternative to conventional variational and perturbation methods. Using high-quality variational trial functions and path integral method based on generalized Feynman-Kac method, we have been able to calculate the non-Born-Oppenheimer energy for hydrogen molecule for the X1 g1 state and hydrogen molecular ion. Combining these values and the value for ionization potential for atomic hydrogen, the dissociation energy and ionization potential for hydrogen molecules have been determined to be 36 113.672(3)cm-1 and 124 446.066(10)cm-1, respectively. Our results favorably compare with other theoretical and experimental results and thus show the promise of being a nonperturbative alternative for testing fundamental physical theories.


**Author keywords-** dissociation energy; generalized Feynman-Kac method; ionization potential; Non-Born-Oppenheimer approximation; Ornstein-Uhlenbech process

**Quartile** – Q3 | **Percentile** – 25th | **Impact Factor** – 1.06 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

## PLASTIC WASTE MANAGEMENT: METHODS AND APPLICATIONS

Deshmukh K., **Parameswaranpillai J.**,
*Plastic Waste Management: Methods and Applications Open AccessPages xv - xvi1*
*January 2024*

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## Abstract

Nowadays, plastics have become an important product worldwide because of theirmanifold applications in commercial and industrial sectors comprising electronics,construction, automotive, healthcare, agriculture, and packaging owing to theirremarkable physical and chemical properties. In recent years, the demand for plas-tics has grown significantly owing to their number of advantages, which includeresistance to corrosion, sustainability, ease of use, production simplicity, and lowcost. Based on their functionality, plastics can be easily modified to desired shapeand color, and the large-scale production of plastics has increased drasticallybecause of high community demand and worldwide industrial revolution. However,the excessive utilization of plastics and their nondegradable nature accompaniesseveral environmental and health problems caused by poor waste managementafter utilization and negligence during the production of plastics. Municipal solidwaste contains about 10% to 12% of residual plastic, which post-combustion releasesthe gases into the environment, thereby increasing air pollution and causing green-house effects. In general, the poor disposal and ill-treatment of plastic waste affectanimals, public health, and environmental pollution. The implications of plasticwaste management on health and the environment are increasing day by day, par-ticularly in developing countries, and therefore regulatory affairs dealing with envi-ronmental clearance and safety are employed. Thus, governments, municipalcorporations, civil society, and territorial governance constitute various measuresand legislative norms concerning environmental protection that can guide citizensto dispose of waste plastic after its use. Some examples of waste management strate-gies are recycling, incineration, bioremediation, and landfilling. These strategies aredeveloped to ensure environmental safety, cleanliness, and efficient disposal of plas-tic waste. Thus, constituting accessible and efficient waste management policies is acornerstone of sustainable development and environmental sustainability.

**Quartile** – Q1 | **Percentile** – 92nd | **Impact Factor** – 3.4 | SDG

03 GOOD HEALTH AND WELL-BEING

17 PARTNERSHIPS FOR THE GOALS

# A NOVEL DUAL-CHANNEL SPR-BASED PCF BIOSENSOR FOR SIMULTANEOUS TUBERCULOSIS AND URINARY TRACT INFECTION DIAGNOSIS TOWARDS SDG3

Divya J., Selvendran S., **Itapu S.**, Borra V.

*IEEE Access Open AccessPages 1-12024*

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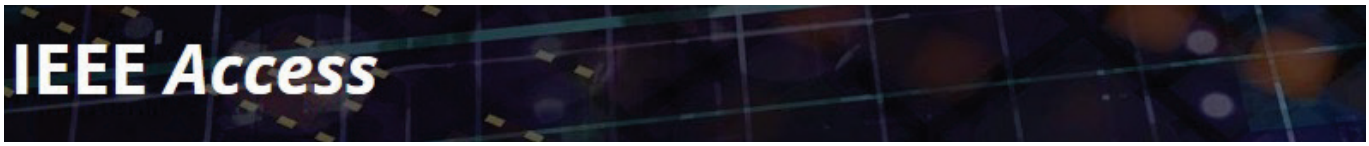
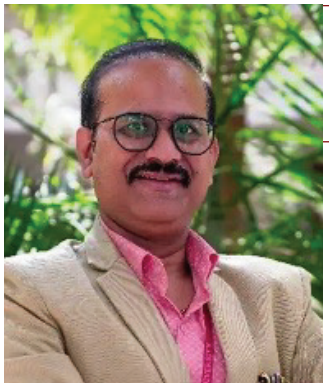



## Abstract

Sustainable development goal (SDG) 3.3 targets the eradication of epidemics such as AIDS, Tuberculosis (TB), hepatitis, and other communicable diseases. Effective early disease detection methods are essential for reaching this objective. Surface plasmon resonance (SPR) influenced biosensors are now widely recognized as an effective method for detecting biomolecular interactions in real time, without the need for labeling. This study proposes a dual-channel photonic crystal fiber (PCF)-based SPR sensor for simultaneous detection of two different analytes. The sensor features channels Ch1 and Ch2, each with unique resonance peaks at different wavelengths corresponding to the refractive index (RI) of the sensing samples. The sensor's structure is optimized using Finite Element Method (FEM), ensuring high sensitivity and a rapid response within the RI range of bio-analytes. RI data sourced from infectious diseases like Tuberculosis (TB) and Urinary Tract Infection (UTI) are utilized. Initially, Ch1 focuses on TB detection, and Ch2 on UTI detection, achieving optimal wavelength sensitivity of 10,000 nm/RIU and 8235.29 nm/RIU for Ch1 and Ch2, respectively. Notably, both channels excel at distinguishing samples of the same disease. When detecting TB, these channels exhibit distinct resonance wavelengths for heavily and mildly infected blood samples, demonstrating remarkable sensitivity of 32,000 nm/RIU. Similarly, for UTI detection, the biosensor achieves a sensitivity of 73,170 nm/RIU when distinguishing between gram-positive and gram-negative bacteria. The sensor's performance is evaluated based on sensing resolution, sensitivity, and figure of merit values, demonstrating its potential for accurate and early diagnosis of TB and UTIs.

**Author keywords-** Biosensor; Gold; Gold; Graphene; Metals; Optical fiber sensors; Optical fibers; Photonic crystal fiber; Plasmons; Sensitivity; Silver; Silver; Surface plasmon resonance; Sustainable development goal; Titanium dioxide; Tuberculosis; Urinary tract infections

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES



# ANALYZING THE BENEFITS AND DRAWBACKS OF ONLINE LEARNING IN HIGHER EDUCATION

**Dwivedi T.**, Prajapati V., Jariwala C.H., Prajapati A., Murthy G.V.K.

*African Journal of Biological Sciences (South Africa) Volume 6, Pages 1115 – 11252024*

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## Abstract

There are both positive and negative aspects associated with the rise of online learning in higher education, which can be experienced by students, teachers, and educational institutions alike. There has been a change in the field of education brought about by the broad adoption of digital technology, which has made previously unimaginable possibilities for distant learning and the availability of instructional materials an available alternative. The purpose of this study is to investigate the many advantages and disadvantages of online learning in the context of higher education. Students have the ability to access course materials and lectures in a convenient manner through online learning, which offers an incredible degree of flexibility. Non-traditional learners, such as working professionals or individuals with familial duties, who may have trouble attending conventional, face-to-face sessions, can benefit tremendously from the adaptability of online education. This is especially true for individuals who are non-traditional learners. It is also possible for students from a wide variety of backgrounds to pursue higher education through the use of online learning, which provides increased accessibility by bypassing regional geographical barriers.


**Author keywords-** Benefits; Drawbacks; Higher Education; Learning; Online

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

# ANALYZING THE BENEFITS AND DRAWBACKS OF ONLINE LEARNING IN HIGHER EDUCATION

Gadgil A.A., Shanbhag S.S., Pachauri V.
*African Journal of Biological Sciences (South Africa) Volume 6, Pages 314 – 3232024*

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## Abstract

Organizational talent acquisition strategies revolve around recruitment and HR functions. Attracting and maintaining top talent in today's highly competitive employment market is a daunting task, but it is essential for the success of any organization. In order to find the most qualified applicants who also share the company's values, culture, and goals for the future, it is critical to use efficient HR and recruitment methods. Recruiting top talent is about more than just filling open jobs; it's a calculated effort to find, attract, and develop the kind of brilliant minds that can boost an organization's creativity, output, and success. Therefore, human resources experts are crucial in forecasting and meeting short-term staffing demands while simultaneously laying the groundwork for the organization's continued success in the future. As a result, HR experts and company executives are focusing on finding the best ways to recruit outstanding people. Crafting attractive job descriptions, leveraging corporate branding, developing strong screening processes, and delivering competitive remuneration and benefits packages are all part of the recruitment and HR lifecycle. The main goal of this research is to analyze effective best practices for hiring top talent acquired by HR & to understand recruitment & talent acquisition process by HR.


**Author keywords-** Best Practices; HR; Recruitment; Talent Acquisition

**Quartile** – Q3 | **Percentile** – 25th | **Impact Factor** – 0.38 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

# THE EVOLVING MEDIA ECOSYSTEM AND RELIGIOUS PATTERNS IN ANANTNAG, KASHMIR

**Gupta S.**, Sharma P., Chaudhary S., Kumar V., Singh S.P., Lourens M., Beri N. *International Journal of Intelligent Systems and Applications in Engineering Volume 12, Issue 8s, Pages 251 – 2642024.*

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## Abstract

The field of generative artificial intelligence (GAI) has advanced significantly in recent years, and its effects may be seen across the software product management industry. This comprehensive literature review draws on relevant studies published between 2016 and 2023 and demonstrates the possible uses, advantages, and restrictions of generative AI in this domain. The research demonstrates that technology aids in ideation, market research, consumer insights, spec writing, and product development. By automating tasks like code production and analysing user input, it may cut down on expensive and time-consuming software development. However, there are still concerns about the precision and safety of the technology, as well as ethical implications. Practical applications of generative AI have the potential to greatly enhance software product management processes, leading to more effective use of resources, higher quality product results, and enhanced user experiences.


**Author keywords-** AI Applications in Product Management; Applications of Generative AI; Ethical Considerations; Generative AI; Generative AI Limitations; Generative AI Tools; Product Management; Product Manager

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

**Quartile** – Q1 | **Percentile** – 94th | **Impact Factor** – 3.8 | SDG

# ALTMETRIC DATA QUALITY ANALYSIS USING BENFORD'S LAW

Gupta S., Singh V.K., **Banshal S.K.**

*Scientometrics 2024*

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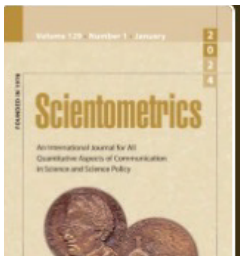


**Scientometrics**
An International Journal for all Quantitative Aspects of the Science of Science, Communication in Science and Science Policy
Publishing model
Hybrid

## Abstract

Altmetrics, or alternative metrics, refer to the newer kind of events around scholarly articles, such as the number of times the article is read, tweeted, mentioned in blog posts etc. These metrics have gained a lot of popularity during last few years and are now being collected and used in several ways, ranging from early measure of article impact to a potential indicator of societal relevance of research. However, there are several studies which have cautioned about use of altmetrics on account of quality and reliability of altmetric data, as they may be more prone to manipulations and artificial inflations. This study proposes a framework based on application of Benford's Law to evaluate the quality of altmetric data. A large sized altmetric data sample is considered and the fits with Benford's Law are computed. The analysis is performed by doing plots of the empirical data distributions and the theoretical Benford's, and by employing relevant statistical measures and tests. Results for fit on first and second leading digit of altmetric data show conformity to Benford's distribution. To further explore the usefulness of the framework, the altmetric data is subjected to artificial manipulations through a systematic process and the fits to Benford's law are reassessed to see if there are distortions. The results and analysis suggest that Benford's Law based framework can be used to test the quality of altmetric data. Relevant implications of the research are discussed.


**Author keywords-** Altmetric data quality; Altmetrics; Benford's distribution; Benford's law; Social media mentions

**Quartile** – Q1 | **Percentile** – 94th | **Impact Factor** – 6.3 | SDG

11 SUSTAINABLE CITIES AND COMMUNITIES

# AN AIOT-BASED HYDROPONIC SYSTEM FOR CROP RECOMMENDATION AND NUTRIENT PARAMETER MONITORIZATION

Rahman M.A., Chakraborty N.R., Sufiun A., Banshal S.K., Tajnin F.R.
*Smart Agricultural TechnologyOpen AccessVolume 8August 2024 Article number 100472*

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## Abstract

Advancements in technology have revolutionized various sectors, including agriculture, which serves as the backbone of many economies, particularly in Asian countries. The integration of new technologies and research has consistently aimed to enhance cultivation rates and reduce reliance on manual labor. Two key technologies, Artificial Intelligence (AI) and the Internet of Things (IoT), have emerged as pivotal tools in automating processes, providing recommendations, and monitoring agricultural activities to optimize results. While traditional soil cultivation has been the preferred method, the increasing urbanization trend necessitates alternative approaches such as hydroponics, which replaces soil with water as the medium for crop cultivation. Having many significant advantages, hydroponics serves a crucial role in achieving efficient space utilization. To get a higher density of plants in a confined area hydroponic approach provides water, nutrients and other essential elements directly to the plant's root. To utilize the hydroponic system more effectively, our proposed method, integrating AI and IoT helps to provide suitable crop recommendations, monitor the parameters of the plants and also suggest the necessary changes required for gaining optimal parameters. To ensure optimal resource allocation and maximize yields we have used machine learning models and trained them to recommend suitable crops from the given parameters and also refer to the changes in parameters that are needed for better plant growth. We have used the crop recommendation dataset from the Indian Chamber of Food and Agriculture to train our proposed machine-learning model. Our selected machine learning algorithms to predict the best crops are Random forests, Decision trees, SVM, KNN, and XGBoost. Our research combines AI and IoT with hydroponic systems to streamline crop recommendations, automate monitoring processes, and provide real-time guidance for optimized cultivation. Among them, the Random forest algorithm outperformed other algorithms with an accuracy of 97.5%.


**Author keywords-** Artificial Intelligence (AI); Automation; Crop cultivation; Hydroponics; Internet of Things (IoT); Machine learning; Monitoring; Recommendation; Yield optimization

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

03 GOOD HEALTH AND WELL-BEING

# AN IMPROVED FILTER BASED FEATURE SELECTION MODEL FOR KIDNEY DISEASE PREDICTION

**D. M. Deepak,** Raj Geetha A., Keerthika V.

*Communications in Computer and Information Science Volume 2121 CCIS, Pages 165 - 1762024 1st International Conference on Intelligent Computing for Sustainable Development, ICICSD 2023Hyderabad25 August 2023through 26 August 2023Code 312619*

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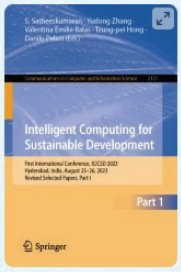


**Intelligent Computing for Sustainable Development**

First International Conference, ICICSD 2023, Hyderabad, India, August 25–26, 2023, Revised Selected Papers, Part I

Conference proceedings | © 2024

## Abstract

In terms of societal health threats, kidney disease has been viewed as an increasing threat in the modern day. With an increasing incidence, chronic kidney disease (CKD) is a global public health concern. Early detection allows us to control the initial situation and administer treatment, but it also represents the most efficient means of addressing the growing global relevance sustainably. Accurately classifying kidney disorders plays a crucial role in clinical mining and is one of the most active study areas in medical data analysis. To anticipate an important and novel attribute that is not used in previous studies to diagnose, a new feature selection approach called WCR (Weighted Class Relief) was suggested in this work using the Relief feature selection model. The prediction accuracy of the proposed model is assessed using datasets related to kidney disease. Different metrics, including accuracy, precision and recall, are employed to evaluate WCR performance. The classification accuracy on MULTISurf, Relief-F, and Relief has been investigated using four classifiers, including SVM, KNN, Random Forest, and Naive Bayes. The outcome demonstrates that the suggested attribute selection strategy is successful and efficient at identifying the kidney disease.


**Author keywords-** classification; feature selection; health care; machine learning; prediction

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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

## ETHICAL CONSIDERATIONS OF AI IMPLEMENTATION IN THE LIBRARY ERA

**Rajkumar N.**, Viji C., Mohanraj A., Senthilkumar K.R., Jagajeevan R., Kovilpillai J. A.
*Improving Library Systems with AI: Applications, Approaches, and Bibliometric Insights*
*Pages 85 - 10617 May 2024*

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Improving Library Systems with AI: Applications, Approaches, and Bibliometric Insights
K.R. Senthilkumar, R. Jagajeevan
Release Date: May, 2024 | Copyright: © 2024 | Pages: 326
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## Abstract

As the mixture of artificial intelligence (AI) continues to permeate several sectors, ethical considerations have ended up a focus in ensuring responsible and sustainable AI deployment. This virtual library explores the multifaceted moral dimensions related to AI implementation. The gathering of scholarly articles and studies papers delves into key moral problems, spanning troubles which includes bias and fairness, transparency, responsibility, privacy, and societal impact. The number one section of the virtual library addresses the undertaking of algorithmic bias and fairness, reading how biases in AI systems can perpetuate societal inequalities. Various methods to mitigating bias and selling fairness in AI algorithms are explored, providing insights into the improvement of more equitable AI programs. Transparency and duty are the focal factors of the second one segment, emphasizing the need for clean conversation of AI decision-making techniques and mechanisms for holding AI systems answerable for their movements.

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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

# UNLEASHING THE FUTURE POTENTIAL OF 4D PRINTING: EXPLORING APPLICATIONS IN WEARABLE TECHNOLOGY, ROBOTICS, ENERGY, TRANSPORTATION, AND FASHION

**Rajkumar N.**, Viji C., Mohanraj A., Senthilkumar K.R., Jagajeevan R., Kovilpillai J. A.
*Improving Library Systems with AI: Applications, Approaches, and Bibliometric Insights*
*Pages 85 - 10617 May 2024*

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Improving Library Systems with AI: Applications, Approaches, and Bibliometric Insights
K.R. Senthilkumar, R. Jagajeevan
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DOI: 10.4018/979-8-3693-5593-0
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## Abstract

4D printing technology combines additive manufacturing with materials that can change shape or properties over time, enabling objects to self-assemble, self-repair, and adapt to their environment. It has potential applications in robotics, autonomous systems, energy and environmental systems, and smart materials for energy storage and distribution. The text discusses the potential of 4D printing technology and its role in shaping the future of wearable technology, robotics, energy, transportation, and fashion industries. It looks at future applications of 4D printing in fashion and design, such as dynamic and customizable clothing and accessories, shape-changing jewelry and wearable art, responsive and interactive fashion shows and events, and sustainable and adaptive fashion manufacturing processes. It emphasizes the importance of continued research and development to unlock the full potential of 4D printing and its transformative impact on various industries.

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

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# UTILIZING DEEP LEARNING TO ENHANCED SECURITY IN THE INTERNET OF MEDICAL THINGS VIA INTRUSION DETECTION SYSTEMS

**Revathi T.**, Anbazhagan K., Kavitha R.

*International Conference on Emerging Technologies in Computer Science for Interdisciplinary Applications, ICETCS 20242024 2024 IEEE International Conference on Emerging Technologies in Computer Science for Interdisciplinary Applications, ICETCS 2024Bengaluru22 April 2024through 23 April 2024Code 199994*

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## Abstract

The incorporation of the Internet based Things (IoT) into medical applications has significantly improved healthcare operations and patient treatment. Real-time patient monitoring systems, coupled with remote diagnostics using Internet based Medical Things (IoMT) technology, empower physicians to efficiently handle more cases and potentially save lives. However, IoMT devices are susceptible to cybersecurity threats, posing risks to data security and privacy. Due to constraints in computing power and memory utilization of IoMT devices, implementing traditional security measures becomes impractical. This article introduces a groundbreaking system, ParticleSwarmNetGuard (PS-NG), which combines Element Swarm Optimization with a Deep Neural based Network structure to establish a robust intrusion detection system in IoMT. This innovative system exceeds current data-security standards and achieves an impressive 96% accuracy in detecting network intrusions by utilizing a combined dataset of network traffic and patient sensing data. Furthermore, the performance analysis conducted compares numerous Machine Learning type mechanism (ML) techniques aimed at network intrusion detection in IoMT, confirming the superior performance of DL models over ML models.

**Author keywords-** Data-security; IoMT; Swarm Optimization

**Quartile** – Q1 | **Percentile** – 98th | **Impact Factor** – 13.3 | SDG 07 AFFORDABLE AND CLEAN ENERGY

# CUSTOMIZED EXTRUSION NOZZLE ASSISTED ROBUST NYLON 6/MWCNT NANOCOMPOSITE BASED TRIBOELECTRIC NANOGENERATORS FOR ADVANCED SMART WEARABLES

**Roy S.**, Dasgupta Ghosh B., Mishra S., Lim Goh K., Kim J.

*Chemical Engineering Journal, Volume 4931 August 2024 Article number 152598*

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Chemical Engineering Journal
Supports open access
21.7 CiteScore | 13.3 Impact Factor

## Abstract

To meet the growing demand for durable, tough, and electrically conductive polymer nanocomposites driven by the rise of smart devices, e-textiles, wearables, and advanced structures, this study offers a systematic approach to fabricating highly robust Nylon 6/multi-walled carbon nanotubes (MWCNTs) nanocomposite films and fibers. The robustness of the nanocomposite is achieved through a simple straightforward approach involving the selective surface functionalization of MWCNTs with oxygen plasma-assisted tetraethylenepentamine grafting (O2T-MWCNTs) and melt-blending these MWCNTs with Nylon 6 under optimized conditions. The mixture is then processed through a specially designed narrow convergent nozzle attached to the extruder die. The die facilitates the alignment of the CNTs into the matrix in the flow direction and increases the composite strength. The incorporation of just 1 wt% of O2T-MWCNTs into Nylon 6 results in a nanocomposite with a remarkable enhancement, demonstrating a 93.25 % increase in tensile strength (T.S.), a 50.47 % increase in Young's Modulus (E), and an outstanding 136 % increase in elongation at the break ( ) compared to neat Nylon 6, surpassing contemporary benchmarks. Importantly, this method yields a nanocomposite 30.2 % stronger than the conventional melt-blending process without a nozzle. When fabricating a triboelectric nanogenerator (TENG) with the nanocomposite, exceptional performance was observed, with an output voltage of 105.7 V, a current of 10.55 μA, and a power density of 465 mW/m2, surpassing many reported values. Moreover, the TENG displays highly stable performance through 20,000 cycles of continuous compression. The nanogenerator also exhibited outstanding capability in harvesting mechanical energy from body movements, as demonstrated by lighting various LEDs and small electronics.

**Author keywords-** Carbon nanotubes; Nanocomposites; Nanogenerator; Tensile strength; Toughness; Triboelectric

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

## ANN ENABLED OBSTACLE AVOIDING AUTOMATED CAR

**Selvam M.**, Rajeswari R., Amogha Varsha A., Shetty A.A.

*Lecture Notes in Electrical EngineeringVolume 1156 LNEE, Pages 279 - 2942024 8th International Conference on Microelectronics, Electromagnetics, and Telecommunication, ICMEET 2023Aizawl6 October 2023through 7 October 2023Code 312409*

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## Abstract

Automated vehicle is one which is equipped for visualizing the current circumstances and taking the decisions by itself on the movement and control with the assistance of the human. Human driver is not needed always and takes the responsibility in all decision making of driving since it is self-driven. It mimics the actions of the driver by the predefined sets of rules and self-learning on the decisions to be taken dynamically. It will depend on sensors, actuators, calculations, complex decision and Artificial Intelligent frameworks. Specialized processors are available on the design and programming aspects now. Radar sensors are useful in screening the situations nearby to the vehicles. Camcorders will identify traffic signals, digitize street signs, monitor different vehicles and keep the people updated without their request. Light Identification and Ranging (LIDAR) sensors skip beats of light off the environmental factors of the vehicles to gauge distances, recognize markings of the path and distinguish street edges. Ultrasonic sensors in the wheels of the vehicle distinguish controls and different vehicles on the fly of the vehicle. This research deals the automation of the car by finding the path and avoiding the obstacles automatically in 360 degrees.


**Author keywords-** Actuators and sensors; Autonomous; Circuit and bridging; Light detection and ranging; Locomotors; Motors; Sound navigation and ranging

**Quartile** – Q2 | **Percentile** – 59th | **Impact Factor** – NA | SDG

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# ON TRUNCATED VERSIONS OF THE XGAMMA DISTRIBUTION: VARIOUS ESTIMATION METHODS AND STATISTICAL MODELING

Sen S., Alizadeh M., Aboraya M., Ali M.M., Yousof H.M., Ibrahim M.

*Statistics, Optimization and Information ComputingVolume 12, Issue 4, Pages 943 - 9612024*

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**Statistics, Optimization & Information Computing**

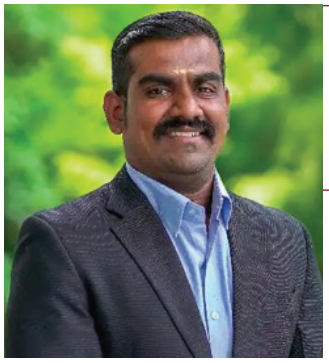
## Abstract

In this article, we introduced the truncated versions (lower, upper and double) of xgamma distribution (Sen et al. 2016). In particular, different structural and distributional properties such as moments, popular entropy measures, order statistics and survival characteristics of the upper truncated xgamma distribution are discussed in detail. We briefly describe different estimation methods, namely the maximum likelihood, ordinary least squares, weighted least square and L-Moments. Monte Carlo simulation experiments are performed for comparing the performances of the proposed methods of estimation for both small and large samples under the lower, upper and double versions. Two applications are provided, the first one comparing estimation methods and the other for illustrating the applicability of the new model.


**Author keywords-** Actuators and sensors; Autonomous; Circuit and bridging; Light detection and ranging; Locomotors; Motors; Sound navigation and ranging

**Quartile** – Q2 | **Percentile** – 59th | **Impact Factor** – 2.4 | SDG

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE



# MECHANICAL BEHAVIOUR ANALYSIS FOR BANANA/COIR NATURAL FIBER HYBRID EPOXY COMPOSITES THROUGH EXPERIMENTAL MODELLING

Senthil Kumar M.S., **Rajeshkumar L.**, Rangappa S.M., Siengchin S.

*Journal of Polymer Research, Volume 31, Issue 6June 2024 Article number 163*

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## Abstract

The objective of this study is to analyze the mechanical properties of banana/coir natural fibers reinforced epoxy composites. Additionally, the study aims to optimize the composite manufacturing process parameters to maximize the properties of these composites. Hybrid epoxy composite laminates were manufactured using the compression moulding technique. Fiber proposition, fiber length, and volume fraction of fiber-matrix were the process parameters considered and the experimental modelling was done using Taguchi's L9 orthogonal array (OA) design. The optimal process parameters were determined response table and the influence of process parameters was determined using analysis of variance (ANOVA) and Response Surface Methodology (RSM). From the optimization results, the composites with 65:35 fiber/matrix volume proportion, 10 mm fiber length, and 75:25 banana/coir proportion were found to possess better tensile, compressive, impact and flexural properties relatively. Surface morphology of the composites with optimal parameters depicted that the interaction of chemically treated banana and coir fibers with the epoxy matrix was good and the hybrid composite surface exhibited better compatibility. These composites find their applications in various automobile, marine, and aerospace components carrying low and medium loads.


**Author keywords-** Hybrid composites; Mechanical properties; Natural fibers; Optimization; Surface morphology

**Quartile** – Q2 | **Percentile** – 59th | **Impact Factor** – 2.4 | SDG 09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# A COMPARATIVE STUDY REVEALING THE BEHAVIOURAL DIFFERENCE BETWEEN AUTISTIC AND HEALTHY ADULTS

Hariharan D., Banerjee S.K., Jinnah A.M.A., Banu S.B., **Ghantasala G.S.P.**
*Proceedings of the 2024 10th International Conference on Communication and Signal Processing, ICCSP 2024Pages 459 – 4632024*

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## Abstract

Autism is a spectrum disorder whose most common characteristics are seen to be repetitive behavior, challenging social behavior, and difficulty in communication and speech. Many medically proven reasons seem to be prominent causes of autism but there is no definite treatment that has come in to light for people with autism. Autistic people predominantly face challenges related to language and communication. It's not that they are not able to speak but they find it quite difficult to speak and communicate. The present paper shows the autism spectrum disorder in focus on the language and behavioral impairments that children with autism face. 2 groups of perfectly healthy and autistic individuals are taken in the study and aims to shed light on the difference in behavior in the two groups. The study highlights the behavioral impressions of autistic adult individuals. The results showed that autistic people are entirely different from normal people in terms of factors such as compensation, masking, and assimilation making them placed among the categories where they are needed to be treated under special care.


**Author keywords-** Autism; autistic adult; Behavioral issues; Communication; Language Impairments; Speech

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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

# BIOACTIVE NANOPARTICLES FOR WATER PURIFICATION

Hegde M., Chandrashekar A., Gopi J.A., Prabhu N., Gopakumar D.A., George J .J., Midhun D.C.D., **Parameswaranpillai J.**

*Nanomaterials for Air and Water Purification Pages 275 - 303 1 January 2024.*

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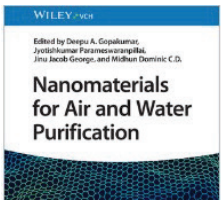


Nanomaterials for Air and Water Purification
Deepu A. Gopakumar (Editor), Jyotishkumar Parameswaranpillai (Editor), Jinu Jacob George (Editor), Midhun Dominic C.D. (Editor)
ISBN: 978-3-527-35052-0 | February 2024 | 432 Pages
E-BOOK PRINT O-BOOK

## Abstract

Multifunctional nanomaterials are suitable candidates for various water treatment techniques. High surface area, higher chemical reactivity, and better antimicrobial activity make these materials efficient for water remediation processes. Nowadays, the biogenic synthesis route makes these nanomaterials more environmentally safe. Among the nanomaterials, bioactive nanoparticles (NPs) such as metallic NPs, metal oxide NPs, bio-based nanomaterials, and carbon-based nanomaterials, are found to be more effective in water treatment processes due to their good photocatalytic and antimicrobial properties. In this chapter, various bioactive NPs, their synthesis, their antimicrobial properties, and their mechanisms are discussed. Promises and challenges related to the use of bioactive NPs for water treatment processes have also been outlined.

**Quartile** – Q1 | **Percentile** – 79th | **Impact Factor** – 4.8 | SDG 09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# EFFECT OF FERROUS, NICKEL, AND TUNGSTEN FILLERS REINFORCEMENT ON GLASS FIBER REINFORCED VINYL ESTER/ POLYESTER COMPOSITES

**Hemath M.**, Rangappa S.M., Pandi Selvan Durai C., Ramesh P., Siengchin S., Al-Romaizan A.N., Hussein M.A., Khan A., Asiri A.M., Althomali R.H.

*Polymer Composites Volume 45, Issue 9, Pages 8436 - 845520 June 2024*

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Edited By: Sadhan C. Jana (Executive Editor), Alessandro Pegoretti (Editor-in-Chief)
JOURNAL METRICS >

## Abstract

The present investigation targets the physical, mechanical, and thermal characteristics of glass fabric-reinforced vinyl ester/polyester hybrid laminates filled with ferrous, nickel, and tungsten micro-particles. The metal-fillers-glass fabric reinforced vinyl ester/polyester hybrid composites was produced by distributing 1 wt% ferrous, nickel, and tungsten with an ultrasonication probe-assisted wet layup method. Polyester resin reinforced with glass fabrics and tungsten fillers (PRGT) presents improved mechanical characteristics compared with other hybrid laminates, with tensile, compression, and flexural strength values of 157.89 MPa, 163.74 MPa, and 167.29 MPa, respectively. The fractographic microstructure of tensile fracture PRGT laminates exhibits that glass fibers pull out, microcracks, and lower gaps, because of stronger filler-fabric-matrix adhesion when compared with other hybrid laminates. The artificial neural network modeling was conducted to choose the best composite among the various manufactured composites. Statistical analysis was observed from the one-way ANOVA technique, substantiating that the physical, mechanical, and thermal characteristics of metal fillers-reinforced hybrid composites were statistically significant. Highlights: Metal-fillers-glass fabric reinforced vinyl ester/polyester hybrid composites. Selection of the best composite from developed composites by ANN. Tungsten fillers are a useful material for reinforcement.


**Author keywords-** ANN; composites; fillers; glass fiber; polyester; vinyl ester

**Quartile** – Q3 | **Percentile** – 43rd | **Impact Factor** – 1.6 | SDG

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# JOB CONTENT PLATEAU AND CAREER COMMITMENT: THE MEDIATING ROLE OF DEVELOPMENTAL I-DEALS AND THE MODERATING ROLE OF PROACTIVE PERSONALITY

**Jena B.P.**, Choudhary A., Pal M.K., Misra S.

*Evidence-based HRM 2024*

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## Abstract

Purpose: Given the detrimental effects of job content plateau, the paper aims to study the impact of job content plateau on employees' career commitment. In doing so, the authors examine whether the lapses in job content plateau can be addressed through developmental i-deals. A final purpose is to examine whether proactive employees are better positioned to obtain work arrangements that help them develop and remain committed to their careers. Design/methodology/approach: Data were collected from full-time working executives employed in different organizations. These executives enrolled in a part-time MBA program. Data was collected at different time points and analyzed using the process macro (Preacher and Hayes, 2004). Findings: The results suggest that developmental i-deals mediated the relationship between job content plateau and career commitment. In addition, proactive employees were better disposed to seal the deal and develop themselves – helping them to stay committed to their careers. Originality/value: Prior studies highlight the negative consequences of job content plateau because it does not provide avenues to learn and develop. This paper addresses the gap in locating opportunities to learn and develop (an aspect that was missing in the job content plateau) through developmental i-deals. First, the study helps answer how to address learning gaps in jobs. Second, who can capitalize on their efforts once the organization sponsors learning opportunities.



Author keywords- Career construction; Developmental i-deals; Job content plateau; Proactive personality

**Quartile** – SCOPUS | **Percentile** – NA | **Impact Factor** – NA | SDG 17 PARTNERSHIPS FOR THE GOALS

# CHARGE TRANSPORT IN SEMICONDUCTOR HETEROGENEOUS STRUCTURE AT OXIDE INTERFACE BY INSERTING A FUNCTIONAL LAYER

Kalsh A., **Dhariwal S.**, Lamba V.K. 2024
*International Conference on Wireless Communications, Signal Processing and Networking, WiSPNET 2024*

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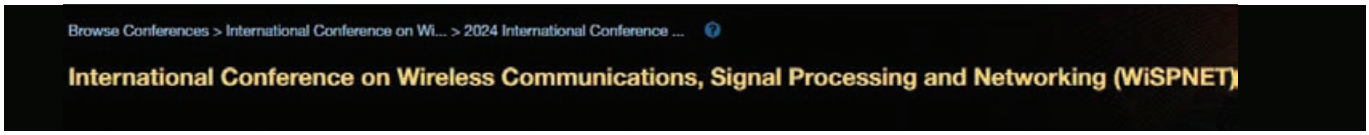


## Abstract

This paper presents a simulated work for analysing the charge transport in heterogeneous structure at oxide interface by inserting a functional layer. Complex oxide interfaces are assumed to be highly promising domain in condensed-matter electronics due to the unique physical characteristics and diverse phenomena observed in semiconductor nanoelectronics-based structures. Magnetization at high Curie temperatures, increased temperature superconductivity, ionic conduction, metal-insulator transitions, and polymorphism are examples of these phenomena. Oxide interfaces between highly correlated electron systems also provide a powerful pathway for manipulating charge, spin, orbital, and lattice degrees of freedom and regulating and enhancing effects through interactions with functional layers. This paper suggests a general method for obtaining non-volatile properties at the oxide interface by inserting a functional layer into a heterogeneous structure. The LaAlO3-SrTiO3 (LAO / STO) complex oxide has been chosen for this research paper.


**Author keywords-** Antenna; Bending; CNT; Fabrics; Flexible electronics; Nanoelectronics; Wetness

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG

17 PARTNERSHIPS FOR THE GOALS

# ENHANCED SECURITY OF IOT DEVICES USING AI APPROACH

**Keerthika V.**, Geetha A., Surekaa S., Vinoda A., Deepak Raj D.M.

*Lecture Notes in Electrical EngineeringVolume 1156 LNEE, Pages 295 – 3082024*

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Lecture Notes in Electrical Engineering

Book series

Lecture Notes in Electrical Engineering

## Abstract

Internet of Things (IoT) connects various devices of networks, enhances services used to protect against attacks and provide privacy of the user related to all the types of security. This paper analyzes the methods and techniques used in IoT systems with artificial intelligence approach to enhance security. Applying AI algorithms to IoT security allows us to develop smart systems which can detect and block security attacks in real time. Due to the lack of powerful and unified security standards in IoT, an increasing number of IoT devices is vulnerable to threats from malicious attackers and bots. In order to detect attacks and identify abnormal behaviors of smart devices and networks, ML techniques can be used to overcome the issues and challenges. The IoT environment gathers data and analyzes it, and can be done effectively using machine learning, which has the ability to access data, analyze data, and perform decision-making based on data received from IoT devices. This paper addresses the issues which need to be investigated and addressed while implementing the machine learning schemes of security in IoT systems. Respectability, confirmation, and privacy are major principles to be considered to ensure the correspondence between IoT devices. AI offers us a new to solve traditional problems and help us reveal new insights on the field of IoT.


**Author keywords-** Denial of service (DoS); Distributed denial of service (DDoS); Internet of things (IoT); Neural networks (NN)

17 PARTNERSHIPS FOR THE GOALS

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG

## CYBER PHYSICAL SYSTEM CENTRED PROTECTIVE LABORATORY FOR INDUSTRIES

**Kiran C.**, Rajesh Sharma R., Sungheetha A., Chinnaiyan R., Murthy R., Divya G., Haritha

*Lecture Notes in Electrical EngineeringVolume 1156 LNEE, Pages 365 – 3742024*

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Lecture Notes in Electrical Engineering

Book series

Lecture Notes in Electrical Engineering

## Abstract

The goal of this project is to create a web-based monitoring service that uses much less space and power while maintaining the same level of efficiency. Web server-based monitoring solutions are becoming more used in many businesses. However, setting up a server on a personal computer requires a lot of space and resources. Using an ESP 32 WI-FI Module and a web server application (Thing Speak Cloud), this study aims to create a system for remote data collecting. Not only can the devices be monitored, but they can also be controlled using this technology.


**Author keywords-** Thing Speak; UNIX; ZigBee

**Quartile** – Q1 | **Percentile** – 82nd | **Impact Factor** – 4.0 | SDG

# A QSPR ANALYSIS AND CURVILINEAR REGRESSION MODELS FOR VARIOUS DEGREE-BASED TOPOLOGICAL INDICES: QUINOLONE ANTIBIOTICS

Kirana B., Shanmukha M.C., **Usha A.**

*Heliyon Open AccessVolume 10, Issue 1230 June 2024 Article number e32397*

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**Current issue**
Volume. 10 Issue. 12, June 30, 2024
Just accepted
Latest content
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## Abstract

Topological indices play an essential role in defining a chemical compound numerically and are widely used in QSPR/QSAR analysis. Using this analysis, physicochemical properties of the compounds and the topological indices are studied. Quinolones are synthetic antibiotics employed for treating the diseases caused by bacteria. Across the years, Quinolones have shifted its position from minor drug to a very significant drug to treat the infections caused by bacteria and in the urinary tract. A study is carried out on various Quinolone antibiotic drugs by computing topological indices through QSPR analysis. Curvilinear regression models such as linear, quadratic and cubic regression models are determined for all topological indices. These regression models are depicted graphically by extending for fourth degree and fifth degree models for significant topological indices with its corresponding physical property showing the variation between each model. Various studies have been carried out using linear regression models while this work is extended for curvilinear regression models using a novel concept of finding minimal RMSE. RMSE is a significant measure to find potential predictive index that fits QSAR/QSPR analysis. The goal of RMSE lies in predicting a certain property of a chemical compound based on the molecular structure.


**Author keywords-** Curvilinear regression models; Degree-based topological indices; QSPR analysis; Quinolone antibiotic drugs

**Quartile** – Q3 | **Percentile** – 45th | **Impact Factor** – NA | SDG

08 DECENT WORK AND ECONOMIC GROWTH

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# DESIGN AND ANALYSIS OF STOCHASTIC 5G NEW RADIO LDPC DECODER USING ADAPTIVE SPARSE QUANTIZATION KERNEL LEAST MEAN SQUARE ALGORITHM FOR OPTICAL SATELLITE COMMUNICATIONS

Krishna Priya R., Sakhare N.N., Paithane A., **Shekhar R.**, Sabarimuthu M.

*Internet Technology Letters 2024*

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INTERNET TECHNOLOGY LETTERS

Edited By: Alfredo Grieco
JOURNAL METRICS >
Online ISSN: 2476-1508


## Abstract

A Stochastic Low-Density Parity-Check (LDPC) decoder is a type of 5G New Radio standard LDPC decoder that uses stochastic techniques to perform decoding. Stochastic LDPC decoding with 5G NR standard typically uses an iterative process, where messages exchanged among variable nodes (VN), check nodes multiple times. Stochastic LDPC decoders are often used in scenarios where the received signal is subject to varying levels of noise. They will provide improved error correction performance compared to traditional LDPC decoders, especially when dealing with channels with varying signal-to-noise ratios in 5G networks. Using the adaptive sparse quantization kernel least mean square algorithm (SLDPC-ASQ-KLMSA), this paper proposes an area-efficient architecture design for a stochastic LDPC decoder. The LDPC code (2048, 1723) is taken from the LOGBASE-T standard and used in this study. We examine the ASQ-KLMSA connection effects. Starting with the VN. It makes checking node functioning easier and reduces inter-connect complexity by capping extrinsic message length at 2 bits. Because of the simplified check node operation in ASQ-KLMSA, the decoder nodes must exchange messages with a greater degree of accuracy. The 3–3 input grouping sub-node of the degree-6 VN was changed with an adder-based 5–1 input grouping sub-node for the (2048, 1723) code in order to get more accurate results when the check-to-variable messages aren't strong enough. A suggested decoder architecture was determined using a stochastic LDPC decoder developed for TSMC 65 nm process (2048, 1723). Bite error rate, throughput, mean square error, latency, power, and area usage are some of the metrics used to evaluate the effectiveness of the SLDPC-ASQ-KLMSA algorithm that has been suggested and implemented in Python. Thus, the proposed approach has attained

34.44%, and 38.39% low mean square error while compared with the existing methods such as higher-performance stochastic LDPC decoder architecture designed through correlation analysis (HP-SLDPC-CA), Higher Throughput and Hardware Efficient Hybrid LDPC Decoder Utilizing Bit-Serial Stochastic Updating(HLDPC-BSSU), Flexible FPGA-Based Stochastic Decoder for 5G LDPC codes (FPGA-SD-5G-LDPC), respectively.


**Author keywords-** 5G; adaptive sparse quantization kernel least mean square; LDPC code; optical satellite communication; stochastic LDPC decoder; virtual node

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

07 AFFORDABLE AND CLEAN ENERGY

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# ANTICIPATING AI IMPACT ON LIBRARY SERVICES: FUTURE OPPORTUNITIES AND EVOLUTIONARY PROSPECTS

Lalitha B., **Ramalakshmi K.**, Gunasekaran H., Murugesan P., Saminasri P., Rajkumar N.
*Improving Library Systems with AI: Applications, Approaches, and Bibliometric Insights*
*Pages 195 - 213*
*17 May 2024*

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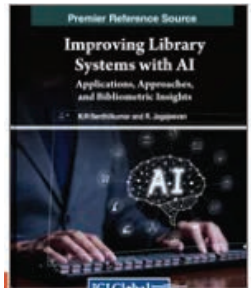



Improving Library Systems with AI: Applications, Approaches, and Bibliometric Insights
K.R. Senthilkumar, R. Jagajeevan
Release Date: May, 2024 | Copyright: © 2024 | Pages: 326
DOI: 10.4018/979-8-3693-5593-0
ISBN13: 9798369355930 | ISBN13 Softcover: 9798369355947 | EISBN13: 9798369355954

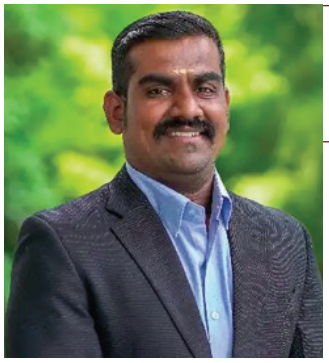
## Abstract

Artificial intelligence (AI) is an emerging field in library science, involving the programming of computers to execute tasks that typically require human intelligence. The overarching goal is to create computer systems capable of thinking and acting like humans, which holds profound implications for the field of librarianship. AI has found widespread application within libraries, with examples including expert systems for reference assistance, robots designed to assist with tasks like book sorting, and the integration of virtual reality for immersive learning experiences. While some may fear that AI implementation could distance librarians from their users, the prevailing view suggests that it will instead complement human expertise rather than replace it. By leveraging AI, libraries can enhance their service delivery, streamline operations, and adapt to the evolving demands of a digital society.

**Quartile** – Q2 | **Percentile** – 59th | **Impact Factor** – 2.4 | SDG

07 AFFORDABLE AND CLEAN ENERGY

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE



# ANTICIPATING AI IMPACT ON LIBRARY SERVICES: FUTURE OPPORTUNITIES AND EVOLUTIONARY PROSPECTS

Manikandan G., Sathishkumar T.P., **L Rajesh Kumar.**

*Biomass Conversion and Biorefinery 2024*

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## Abstract

Natural fibers play a vital role in many industrial applications. Raising the demand for natural fiber, the present is proposed to characterize the novel fiber named Ficus benghalensis (FB) that was extracted from branches of banyan tree. Raw FB fiber has cellulose content of 53.30 wt.%, hemicellulose content of 28.23 wt.%, lignin content of 21.97 wt.%, wax content of 1.69 wt.%, moisture content of 7.43 wt.%, pectin content of 12.13 wt.%, density of 0.49 g/cm3 and ash content of 5.98 wt.%. The diameter of the raw FB fiber is observed as 255 µm, and the same will decrease, and surface area increases, as it undergoes alkali treatment. The Fourier transform infrared spectroscopy (FTIR) investigation shows that the expected functional groups are present in the raw and alkali-treated FB fibers. In the thermogravimetric analysis (TGA) test, raw FB fiber has a maximum degradation temperature at 345 °C which shows less than 6% alkali-treated fiber of 394 °C. The raw and treated FB fiber's thermally induced transitions are confirmed by the differential scanning calorimetry (DSC) test. The X-ray diffraction (XRD) analysis of untreated FBFs revealed a crystallinity index (CI) of 63.68% but 4% alkali treated shows 69.85% with crystallite size (CS) of 1.68 nm. The surface morphology of FB fiber is rough due to alkali treatment. The tensile strength and Young's modulus of FB fiber were measured as 360.12 MPa and 7.76 GPa, respectively. This can be used to develop green materials for automotive and other industrial applications.


**Author keywords-** Chemical composition; Fiber surface morphology; Ficus benghalensis fiber; Thermal analysis; X-ray diffraction

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG

06 CLEAN WATER AND SANITATION

# BLYNK-ENABLED IRRIGATION MONITORING SYSTEM: ENHANCING IRRIGATION EFFICIENCY WITH IOT TECHNOLOGY

**Nair R.R.**, Babu T., Kishore S., Nayak D., Thasmiya S., Sindhu S.

*Lecture Notes in Electrical EngineeringVolume 1156 LNEE, Pages 349 – 3632024*

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Lecture Notes in Electrical Engineering

Book series

Lecture Notes in Electrical Engineering

## Abstract

Water monitoring and controlling smart system is proposed to address the limitations of traditional manual irrigation methods in farmlands. These conventional procedures result in waste of resources, including labor and water. To overcome these drawbacks, the proposed system incorporates a comprehensive monitoring approach using soil samples collected from six different locations. Various parameters such as moisture, temperature, humidity, phosphorous, potassium, and nitrogen are monitored using a two-level sensor setup, along with a moisture sensor. The sensors in the proposed work are interfaced with the NodeMCU esp8266 microcontroller. The pump motor's operation is dependent on inputs from the field water level sensor, well water level sensor, and soil moisture sensor. When the field water level is detected and the well water level is not detected, the pump motor remains off. However, if soil moisture is detected and the well water level is within the desired range, the pump motor is activated accordingly. All the data generated throughout the process are stored and displayed on the Blynk IoT cloud platform. This proposed automated irrigation system offers cost-effectiveness and ecological friendliness and enhances agricultural output while reducing the need for manual labor.


**Author keywords-** Blynk; Irrigation system; NodeMCU; Soil moisture

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG

06 CLEAN WATER AND SANITATION

# ENERGY CONSERVATION WITH INTELLIGENT GREENHOUSE AUTOMATION

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

*Lecture Notes in Electrical EngineeringVolume 1156 LNEE, Pages 335 - 3482024*

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Lecture Notes in Electrical Engineering

Book series

Lecture Notes in Electrical Engineering

## Abstract

Greenhouse automation is the remote management and control of household appliances for energy consumption. Smart devices are used in smart greenhouse systems that are intended to enhance users' lives by automating greenhouse security and safety and introducing extra features like remote greenhouse surveillance. This research proposed a greenhouse monitoring system with Internet of Things (IoT) to monitor energy consumption. The infrared (IR) sensor helps to identify the presence of human inside the greenhouse. NodeMCU in the proposed system helps in sending data/signal to ThingSpeak for the storage of information. The threshold value set on each appliance helps in energy consumption. During abnormal conditions in any of the greenhouse automation system, an alert is shared to the concerned person through Global System for Mobile communication (GSM) Module. A Blynk application developed helps in controlling the greenhouse appliance remotely. The monitoring and controlling temperature and soil moisture is provided accurately.


**Author keywords-** Arduino; DHT11; LDR sensor; UNO

**Quartile** – Q4 | **Percentile** – 16th | **Impact Factor** – NA | SDG

06 CLEAN WATER AND SANITATION

# MAPPING CAMPUSES AS AN ARCHETYPE OF "NON-PLACES" THROUGH A STUDY OF SELECT INDIAN CAMPUS FICTIONS

**Namhata R.**, Raj P.E.

*Anthropological Notebooks Volume 30, Issue 1, Pages 47 – 682024*

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## Abstract

College campuses imbibe the empirical trends of social life: network societies, social divisions, and fantasies of opulence where the forces of global capital interact within the campuses. This paper understands the "market logic" as in Augéan non-places, an archetype of frontier-less ontology that has evolved like a rhizome within the college campuses. Auge's Non-Places are ephemeral, sans frontiers, governed by audiovisual technology, and find their existence on the campuses in its commodified capacity of brand logos, internet connectivity, hypermediated consumption, cafés, commerce, cash machines, and transitory relationships. The theoretical framework speculates campuses as ontological spaces bereft of conventional demarcations, intricately bourgeoning institutionally akin to the rhizomatic presence. The present analysis scrutinizes the pivotal role played by the imperatives of global capital and market dynamics with the aim of furnishing educational campuses and making them Augean non-places. Employing literary-discourse analysis, this idea has been interrogated through the study of three Indian Campus Fictions (elite institutes) to explore the campuses of Indian Institutes of Technology as Augéan non-places through the lens of brand, US life, and relationships that attest further to the porosity, fragility, and the customized nature; all-encompassing the campuses as places of commerce, true to Augéan non-places.


**Author keywords-** commerce and mobility; Indian campus fiction; non-places; supermarkets; super modernity

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

17 PARTNERSHIPS FOR THE GOALS

# UNLEASHING POTENTIAL: THE TRANSFORMATIVE INFLUENCE OF EMPOWERMENT, TRUST, AND PROCEDURAL JUSTICE ON FOSTERING EMPLOYEE DEVELOPMENT IN A NEW NORMAL LANDSCAPE

**Pachauri V.**, Bhardwaj H., Kulshreshtha K.

*African Journal of Biological Sciences (South Africa)Volume 6, Pages 3330 – 33442024*

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## Abstract

Purpose: The study is aimed at connecting Employee Empowerment, Trust among employees and Procedural Justice with Employee Development for driving work innovation. The study suggests several avenues for additional research, including carrying up additional empirical investigations on the same and other selected antecedents and results of both within various industries. Design/Methodology/Approach: A theoretical grounded conceptual model is developed to organize a mechanism through Employee empowerment, Trust among employees and Procedural Justice and its relationship with Employee Development fostering work innovation. A questionnaire-based survey was designed to test the model based on dataset of 210 employees in banking industry in Delhi NCR and other parts of north India out of which 176 employees completed the questionnaire completely and correctly. The model and posited hypotheses were tested using SPSS tool. Findings:The results indicated that Employee empowerment, Trust among employees and Procedural justice positively and significantly affect Employee development. Limitations and Implications:The study's findings are specific to the context, industry, or organizational culture in which it was conducted. The reliance on self-reported measures for employee empowerment, trust among employee, procedural justice and employee development may introduce response biases. Future studies could incorporate objective performance metrics or supervisor evaluations to complement self-reported data. Practical implications : The sample represented only banking Industry. The relationship between Employee Empowerment, Trust among Employees, Procedural Justice, and employee development is inspected that would guide managers to induce effective HRD practices in the organizations. The paper offers guidance to practitioners on comprehending and overseeing employee growth. Originality Values: Ample literature is available on these

variables in different context and association but in the best knowledge of authors no study has taken place to integrate all three variables together which have an impact upon employee's development in interactive job of delivering the service in banking industry in last decade.


**Author keywords-** Employee Development; Employee Empowerment; Innovation; Procedural Justice; Trust among Employees

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

17 PARTNERSHIPS FOR THE GOALS

# AUTOMATIC SCREW JACK MOBILE CONTROLLER FOR CAR LIFTING USING THE CAR BATTERY

**Paul P.M.**, Thomas A.K., Hashim S.A., Harsha K.S., Mahesh M., Goutham, Prince

*Lecture Notes in Electrical Engineering Volume 1156 LNEE, Pages 309 – 3202024*

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Lecture Notes in Electrical Engineering

Book series

Lecture Notes in Electrical Engineering

## Abstract

Here, the automatic screw jack using IoT technology shared is used as a light weight component to access a heavy weight car and other four wheeler automobiles. Here, we used Bluetooth technology to send signals using mobile app for the uplift of car for the screws in jack to rotate in clockwise and anticlockwise direction for the uplift and release of the automatic screw jack. Here, we used input 12 V from the car battery and Arduino devices are connected with relay and it is connected to a wiper motor to perform the screw rotation in both the sides, namely clockwise and anticlockwise direction. Arduino Uno is used with Bluetooth technology to connect with android devices so that we can perform the rotation using GSM models. Here, few coding to implement relay was written using Arduino IDE which was used to perform automatic screw jack using IoT devices with android technology by using car battery itself.



**Author keywords-** Battery; DC motor; Mobile controller; Screw jack

**Quartile** – Q3 | **Percentile** – 43th | **Impact Factor** – NA | SDG

# SEGREGATION OF ROCK PROPERTIES USING MACHINE LEARNING ALGORITHM WITH EUCLIDEAN DISTANCE

**Prakash S.**

*International Journal of Mining and Mineral Engineering Volume 15, Issue 1, Pages 71 - 902024*

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## Abstract

In rock drilling applications, abrasion causes wear in inserts and hostile working conditions cause damage to other bit components. The effects of physico-mechanical properties of rock on the tool wear are investigated by several researchers in the past. So, it becomes imperative to exhibit good scalability of rock properties by segregating rock samples having similar properties for natural homogeneous rock property groupings. The aim of this work is to segregate groups with similar type of rock properties and assign them into a cluster. This work considers a machine learning based hierarchical clustering approach to segregate groups of rock with similar traits. The results obtained from this study initiate a conversation on the proper choice of rock and tool material for doing laboratory studies using wear test apparatus. The analysis's findings map the distinct qualities of the rock for different mining areas by classifying groups of rocks with comparable characteristics. Copyright


**Author keywords-** artificial intelligence; clustering; clustering algorithm; drilling; Euclidean distance; machine learning; rock mechanics; rock properties; rock sample; tungsten carbide

**Quartile** – Q2 | **Percentile** – 52nd | **Impact Factor** – 4.0 | SDG 09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# EXPECTED VALUES OF SOMBOR INDICES AND THEIR ENTROPY MEASURES FOR GRAPHENE

Shanmukha M.C., Gowtham K.J., **Usha A.**, Julietraja K.

*Molecular Physics, Volume 122, Issue 102024 Article number e2276905*

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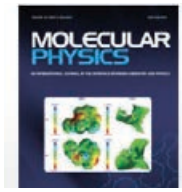


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## Abstract

Graph theory plays a crucial role in various applications of mathematics and applied sciences. One specialised branch of graph theory is mathematical chemistry, which focuses on mathematical modelling and analysing chemical compounds and their properties. In this context, graphs are used to represent the structural and topological features of molecules, enabling chemists to gain insights into chemical reactions and make predictions about molecular properties. Recently, new versions of Sombor indices have been introduced using a geometric approach. This article specifically focuses on entropy-based variations of these Sombor indices, which includes SO, (Formula presented.), (Formula presented.), (Formula presented.), (Formula presented.) and (Formula presented.), in the context of graphene sheet. Graphene has gained significant attention in the scientific and technological communities due to its exceptional properties. It finds widespread applications in diverse fields such as nanotechnology, electronics, energy storage, sensors, materials science and optoelectronics. Given the promising applications of graphene, it becomes essential to theoretically analyse its structure. Molecular descriptors play a crucial role, as they are strongly linked to various characteristics of chemical compounds. To better understand the Sombor indices, this article graphically represents their entropy measures.


**Author keywords-** Chemical graph theory; entropy descriptors; graphene sheet; Sombor indices; topological indices

**Quartile** – Q1 | **Percentile** – 83rd | **Impact Factor** – 5.8 | SDG

# GATE-TO-GRAVE ASSESSMENT OF PLASTIC FROM RECYCLING TO MANUFACTURING OF TENG: A COMPARISON BETWEEN INDIA AND SINGAPORE

Sharma S., Lai W.L., **Roy S.**, Maji P.K., Ramakrishna S., Goh K.L.

*Environmental Science and Pollution Research Open Access2024*

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## Abstract

This study assesses the viability of recycled plastic-based triboelectric nanogenerators (TENGs) for sustainable energy harvesting in India and Singapore, concurrently examining plastic waste management. Using material flow analysis and life cycle assessment, the findings revealed that in Singapore, waste-to-energy incineration has a lower environmental impact than landfilling and mechanical recycling, attributed to natural gas usage. In India, recycling offsets impacts from incineration and landfilling, contributing to a lower net environmental impact. Economic performance of a TENG module from PET recyclates showed a 20% carbon footprint reduction when scaling up from lab to industrial "freeze-drying" processes. Key challenges in TENG manufacturing processes are also assessed for future development. This research highlights the potential of recycled plastic-based TENGs in sustainable energy and waste management.


**Author keywords-** Environmental assessment; Life cycle analysis; Plastic recycling; Recycling to manufacturing; Triboelectric nanogenerators; Waste management

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

# IOT-BASED CONDITIONING MONITOR SYSTEM FOR MINING APPLICATIONS

**Shekarappa G.S.**, Anusha B., Dhanu R.

*Lecture Notes in Electrical Engineering Volume 1156 LNEE, Pages 279 - 2942024 8th International Conference on Microelectronics, Electromagnetics, and Telecommunication, ICMEET 2023Aizawl6 October 2023through 7 October 2023Code 312409*

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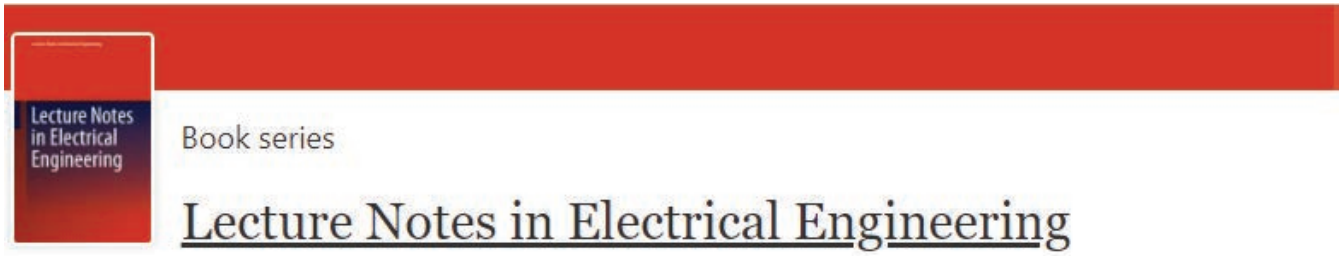


## Abstract

Recent advancements in sensor technology, including innovations like Micro-electromechanical Systems (MEMS), wireless communication, embedded systems, distributed processing, and the deployment of wireless sensor applications, have brought about a significant transformation in the realm of wireless sensor network (WSN). In recent times, WSN has witnessed widespread adoption across various domains, with a particular emphasis on applications in agricultural and environmental surveillance and monitoring. Environmental monitoring has emerged as a critical field for observation and validation, enabling real-time interaction and control with the physical environment. This article delves into the exploration and evaluation of the myriad applications of wireless sensor networks in the context of environmental monitoring. To establish an effective monitoring system, certain prerequisites must be met. Research indicates that this approach has become a feasible alternative to traditional manual monitoring methods. Additionally, these methodologies have demonstrated the potential to improve system performance, offer convenience and efficiency, and fulfill functional requirements.


**Author keywords-** Buzzer; IoT; Mining helmet design; Sensor

**Quartile** – Q1 | **Percentile** – 83rd | **Impact Factor** – 4.2 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

# A NOVEL SYNTHESIS OF IRON-OXY-HALIDES (FOX)-BASED METALLIC MICROSPONGES (FOX-MS): AN EFFICIENT PHOTODEGRADATION OF ANTIBIOTICS

**Talreja N.**, Ashfaq M., Chauhan D., Mangalaraja R.V.

*Clean Technologies and Environmental Policy, 2024*

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## Abstract

The present study is related to the synthesis of metallic oxy halide nanosheets (FOX) assembled metallic micron-sponge (FOX-MS)-based photocatalytic materials using hydrothermal process to degrade tetracycline (TC) antibiotics. The synthesis of FOX-MS is accomplished by exchanging O– with I– that efficiently tunes the electronic structure ($Fe_3O_4$ or $Fe_2O_3$ to form FeOI) and band gap of FeOI. Interestingly, the band gap value decreases with increasing the reaction temperature from 120 to 180 °C attributed to the formation of stable FeOI due to maximum O– exchange with I–. Scanning electron microscopy, X-ray diffraction, Fourier-transform infrared spectroscopy (FT-IR), and diffuse reflectance spectroscopy were used to characterize synthesized FOX-MS-based photocatalyst materials. Additionally, upon increasing the Fe metal amount (from 0.5 to 1 mM) during the synthesis the band gap decreases. However, further increment in the amount of Fe metal during synthesis increases the band gap value. The lower band gap value of ~ 1.82 eV with ECB and EVB value of 0.48 eV and 2.3 eV is in good agreement with the reported low band gap semiconductors for the degradation of various pollutants. The synthesized FOX-MS was efficiently degrading ~ 63% at 10 mgL–1 of TC. Interestingly, Fenton activity of FOX-MS-based photocatalytic materials improved the TC degradation and achieved maximum degradation of ~ 94% at 10 mgL–1 of TC antibiotics. The degradation of TC antibiotics was also performed under acidic and basic pH conditions to confirm the mechanistic pattern of degradation of TC using FeOI-based metallic microsponge. To the best of our knowledge, this is the first report of the synthesis of FeOI metallic microsponge using a hydrothermal process. Graphical abstract: (Figure presented.)


**Author keywords-** Antibiotics; Iron; Metal oxy-halide; Photocatalyst; Semiconductor

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG

08 DECENT WORK AND ECONOMIC GROWTH

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# SMART PREGNANCY WATCH WITH LOCATION-BASED EMERGENCY MESSAGING, A COMPREHENSIVE SOLUTION FOR MATERNAL HEALTH CARE

Tejashwini C., Kumar G.S., **Shekhar R.**

*Lecture Notes in Electrical Engineering, Volume 1156 LNEE, Pages 267 - 2782024 8th International Conference on Microelectronics, Electromagnetics, and Telecommunication, ICMEET 2023Aizawl6 October 2023through 7 October 2023Code 312409*

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## Abstract

Pregnancy is a crucial phase in a woman's life that demands constant monitoring and timely medical intervention when needed. This abstract introduces a pioneering technological solution—the Smart Pregnancy Watch—designed to cater to the needs of expectant mothers. The proposed watch is equipped with hardware and software components that enable real-time health monitoring, automatic emergency messaging, and accurate location tracking to ensure the well-being of pregnant women. The Smart Pregnancy Watch is equipped with an array of sensors capable of monitoring vital signs such as heart rate, blood pressure, and temperature. One of the standout features of the Smart Pregnancy Watch is its location-based emergency messaging system. The watch integrates GPS and advanced location-based algorithms to determine the user's precise location. In the event of a health emergency or any distressing situation, the watch can accurately identify the nearest medical facility and send an automatic distress message to a pre-selected contact list, which may include family members, friends, and medical professionals. This feature ensures that medical assistance can be dispatched promptly, potentially saving lives in critical situations. To implement this solution, a blend of hardware and software technologies is employed. The hardware components encompass a combination of physiological sensors, GPS and GSM modules. These components work in synergy to collect data and communicate with external devices. On the software side, a custom mobile application is developed, providing a user-friendly interface for monitoring health metrics, setting emergency contacts, and configuring personalized settings.



**Author keywords-** Emergency messaging; Health monitoring; Location-based tracking; Maternal health; Smart pregnancy watch; Wearable technology

**Quartile** – SCOPUS | **Percentile** – NA | **Impact Factor** – NA | SDG 09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

## ANTENNA DESIGN FOR IOT AND BIOMEDICAL APPLICATIONS

**Thomas A.K.**, Pandey T.K., Dubey M., Shashidhar T.M., Roy V., Kankalla N.
Array and Wearable Antennas: Design, Optimization, and ApplicationsPages 1 - 121
January 2024

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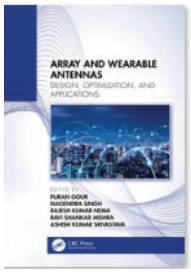


Book

### Array and Wearable Antennas

Design, Optimization, and Applications

*Edited By Puran Gour, Nagendra Singh, Rajesh Kumar Nema, Ravi Shankar Mishra, Ashish Kumar Srivastava*

## Abstract

Given the current state of affairs, the development of wireless communication has had to go through numerous evolutionary stages. The concept of wireless communication, however, has been around for over a century. Personal communication both ON and OFF the body requires body area networking (BAN). The modules of BAN systems include wearable and textile antennas used in patient monitoring, healthcare devices, firefighting uniforms, and other applications. These have antennas that are worn or carried closer to the body. The third and final issue is the need for a reliable power supply, especially in extreme or remote locations, for medical and communication devices. This investigation seeks to understand the human body's influence on the various parameters of the biomedical antennas. The 10dB bandwidth in the human body is significantly larger than the corresponding bandwidth in a lossless medium. In a lossy medium, the frequency of a resonance is lower than in a lossless one. Increasing bandwidth is one way to combat the frequency detuning impact produced by human body losses.

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG

07 AFFORDABLE AND CLEAN ENERGY

09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# INTEGRATION OF AI AND IOT FOR SMART HOME AUTOMATION

Varadarajan M.N., **Viji C.**, Rajkumar N., Mohanraj A.

*SSRG International Journal of Electronics and Communication Engineering, Open AccessVolume 11, Issue 5, Pages 37 – 43, May 2024*

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## Abstract

The incorporation of Artificial Intelligence (AI) and Internet of Things (IoT) technologies has extensively advanced the concept of smart home automation. This integration enables the advent of intelligent structures that could enable the security, convenience, and protection of modern-day living spaces. AI algorithms, along with gadget studying and getting to know deep, can analyze information accumulated through IoT gadgets to make knowledgeable choices and automate numerous tasks in the home environments. This paper explores the combination of AI and IoT for smart home automation, discussing the underlying technology, advantages, and challenges. It examines how AI algorithms may be used to system information from IoT sensors to offer insights and enable automatic movements. Additionally, it discusses the ability benefits of this integration, inclusive of electricity utilization, enhanced safety, and progressed best lifestyles for citizens. The paper also addresses some of the demanding situations associated with integrating AI and IoT in smart houses, including privacy issues, interoperability troubles, and the need for sturdy cybersecurity measures. It concludes with a discussion of future studies, guidelines and capability packages of AI and IoT in smart home automation.


**Author keywords-** Artificial Intelligence; Cyber security; Energy Management; Internet of Things; Smart home automation

**Quartile** – Q2 | **Percentile** – 64th | **Impact Factor** – 3.3 | SDG 09 INDUSTRY, INNOVATION AND INFRASTRUCTURE

# A SYMMETRIC OPTICAL CRYPTOSYSTEM BASED ON QZ DECOMPOSITION AND HERMITE GAUSSIAN BEAM SPECKLES

Vardhan H., Sakshi, Reddy S.G., **Muniraj I.**, Kumar R.

*Optical and Quantum ElectronicsVolume 56, Issue 5May 2024 Article number 885*

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## Abstract

In this paper, we propose a new asymmetric optical cryptosystem for phase image encoding with the utilization of speckles generated by scattering the Hermite Gaussian beams (HGBs) through a rough surface. These speckle patterns are unique and almost impossible to clone as one cannot mimic the physical process. The generalized Schur decomposition, named as, QZ decomposition, approach is used to generate unique private keys for decrypting the encoded data. The plaintext image is first phase-encoded and then modulated with the pattern obtained by the convolution of HGBs and random phase masks. The modulated image is then Fresnel propagated for a distance of z1, and the QZ decomposition operation is performed on the complex wavefront to generate the private keys. Afterward, the gyrator transforms with a rotational angle (α), and the phase truncation is used to further process the information. The phase truncation and phase reservation (PT/PR) will result in another phase private key, which will be utilized for decryption. A non-linear power function is introduced to modify the amplitude part after PT/PR operation and the resultant is modulated using an HGB amplitude mask to get an intermediate wavefront. Finally, the encrypted image is obtained by Fresnel propagating the intermediate wavefront with a distance of z2. The effectiveness and validity of the proposed method are tested and verified through numerical simulations. A series of potential attacks such as contamination and plaintext attacks have been tried and tested to further check the robustness of the proposed method. The results confirm the efficacy of the proposed method.


**Author keywords-** Asymmetric encryption; Hermite Gaussian beam speckles (HGBS); Non-linear power function; Optical cryptosystem; QZ decomposition

**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

# ARTIFICIAL INTELLIGENCE TECHNIQUES FOR BIOCHEMICAL DATA ANALYSIS: OPPORTUNITIES AND CHALLENGES

**Shekhar R.**, Mary P.A., Manojkumar S.B., Naidu P.R., Kumar C., Gowda D., V.
*African Journal of Biological Sciences (South Africa) Volume 6, Issue 2, Pages 1119 – 11412024*

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## Abstract

Artificial intelligence (AI) has revolutionized various scientific domains, and its application in biochemical data analysis is no exception. This paper explores the integration of AI techniques in biochemical research, highlighting the opportunities and challenges associated with this paradigm shift. By leveraging machine learning, deep learning, natural language processing, and reinforcement learning, AI offers enhanced data interpretation, automation of complex tasks, and personalized medicine. However, challenges such as data quality, model interpretability, computational resources, and ethical concerns persist. Through a comprehensive literature review and analysis of AI applications in protein structure prediction, genomics, metabolomics, drug discovery, and clinical biochemistry, this paper provides insights into the current state and future potential of AI in biochemical data analysis. The results demonstrate the superior performance of AI-driven methods compared to traditional techniques, emphasizing the need for continued research and development in this field.


**Author keywords-** Artificial Intelligence; Biochemical Data Analysis; Deep Learning; Machine Learning; Metabolomics; Natural Language Processing; Prediction Genomics; Protein Structure; Reinforcement Learning

**Quartile** – Q4 | **Percentile** – 21st | **Impact Factor** – NA | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

## PREFACE

**Talreja N.**, Chauhan D., Ashfaq M.

*Engineering Materials Volume Part F2207, Pages v – vi 2024*

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**Quartile** – Q4 | **Percentile** – 20th | **Impact Factor** – NA | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

# MULTI-BAND TRANSMISSION OF RECONFIGURABLE AND TRUNCATED BASEBAND CARRIER AGGREGATION ON FPGA

Raj S.R.A., **Murthy G.R.**

*African Journal of Biological Sciences (South Africa)Volume 6, Issue 5, Pages 4756 – 47662024*

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## Abstract

The multiplier is a critical component in digital signal processing; for example the traditional array multiplier, MCM multiplier, DADDA Multiplier, its provides a fast and reliable technique, but it consumes a significant amount of area and power in all digital signal processing applications. This study of this work is a Multi-Band Transmitter digital signal processing application will have multiple baseband signal creation, FIR filter, multipliers. In Multi-Band Transmitter, the multiplier acquire huge importance to provide performance of area and power delay product, however the standard multiplier design takes up a lot of area and consumes a lot of power. Thus, this proposed work was introduced a Truncated Multipliers, rather than conventional multipliers, and its proposed for the design of the multi-band transmitter. A reconfigurable carrier aggregation transmitter with four and eight band bandwidths is also shown in this work, which employs several baseband signals shifted to a separate digital domain intermediate frequency (IF). 5G application of Carrier aggregation, for example, makes advantage of the reconfigurability of carrier spacing and the number of simultaneous carrier transmissions. Finally, this work has been created in Verilog HDL and synthesized on a Xilinx Vivado Zynq-7000 FPGA ZYNQ-7 ZC702, and all parameters in terms of area, delay and power have been compared.


**Author keywords-** Base band Signal generator; Carrier Aggregation; Multi band Transmission; Multiplier

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