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**RESEARCH**

NOVEMBER 2024

**PUBLICATIONS**

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# RESEARCH

# PUBLICATIONS

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NOVEMBER 2024

“ Research is creating new knowledge. ”

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**Neil Armstrong**

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

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**Albert Einstein**

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

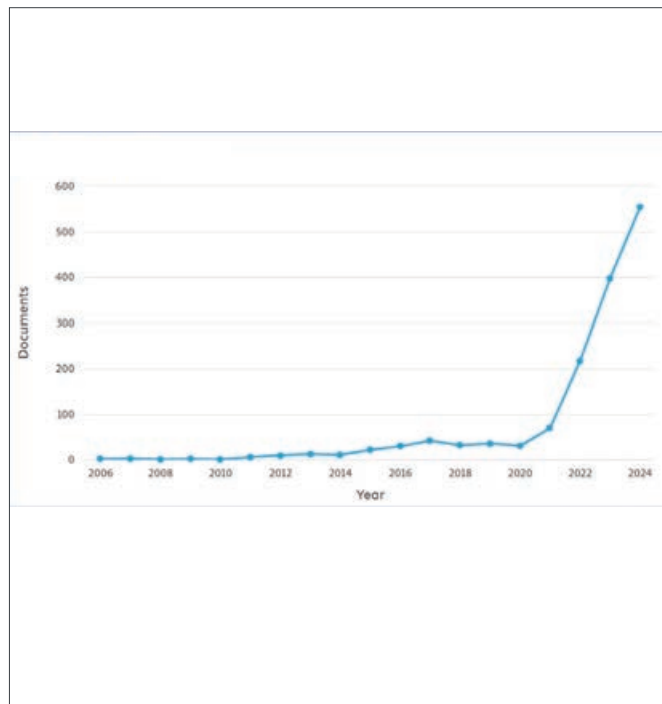
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**Zora Neale Hurston**

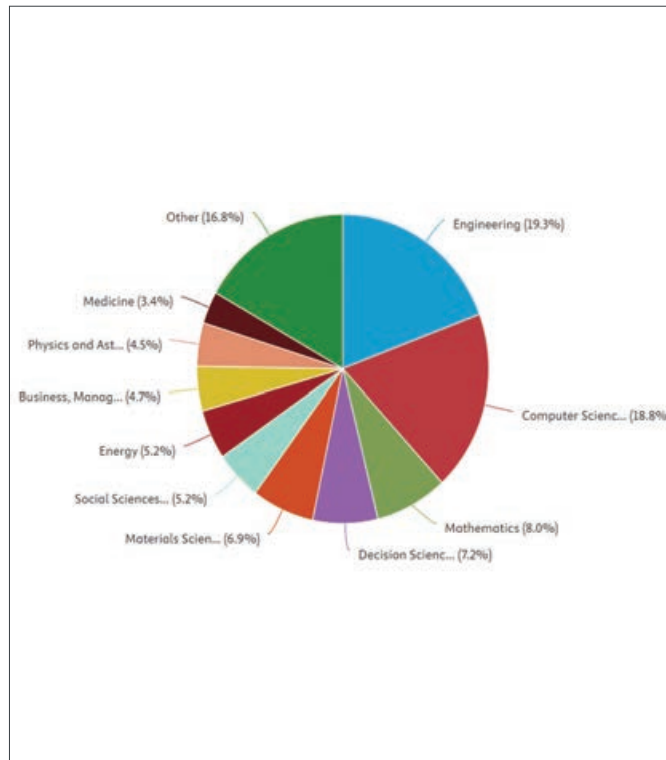
1,473  
Documents

487  
Authors

### Documents by Year



### Documents by Subject Area



### Summary

**1294**

Scholarly Output

**20.7%**

All Open Access

**540**

Authors

**4809**

Citation Count

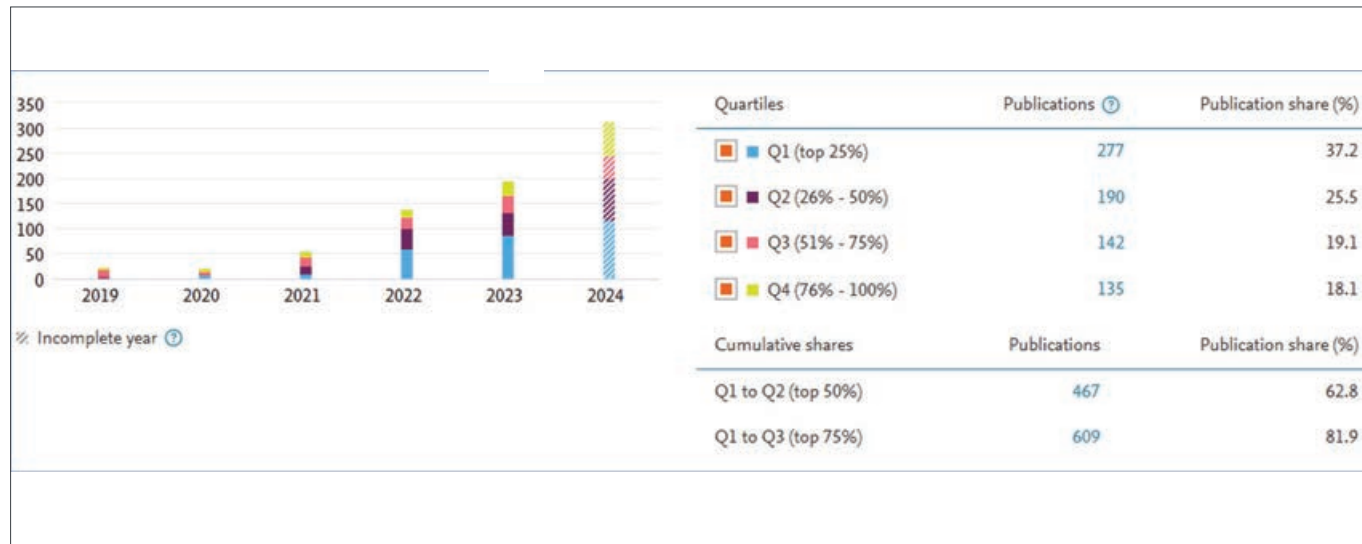
**3.7**

Citations per Publication

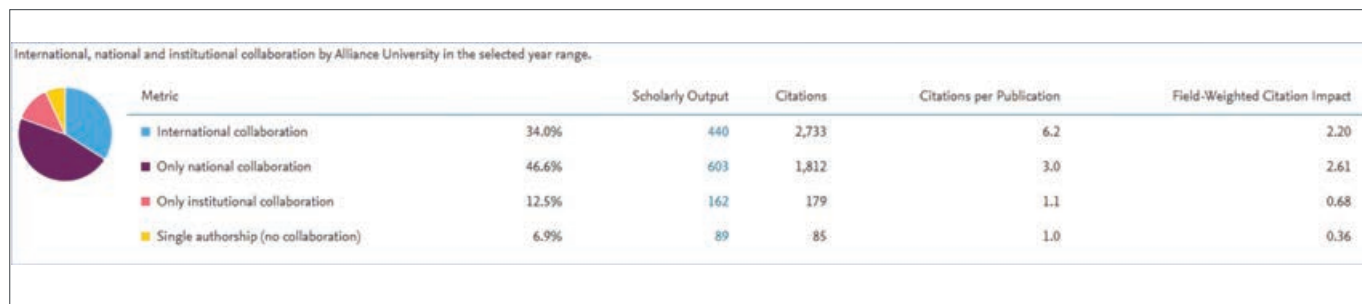
**2.08**

Field-Weighted Citation Impact

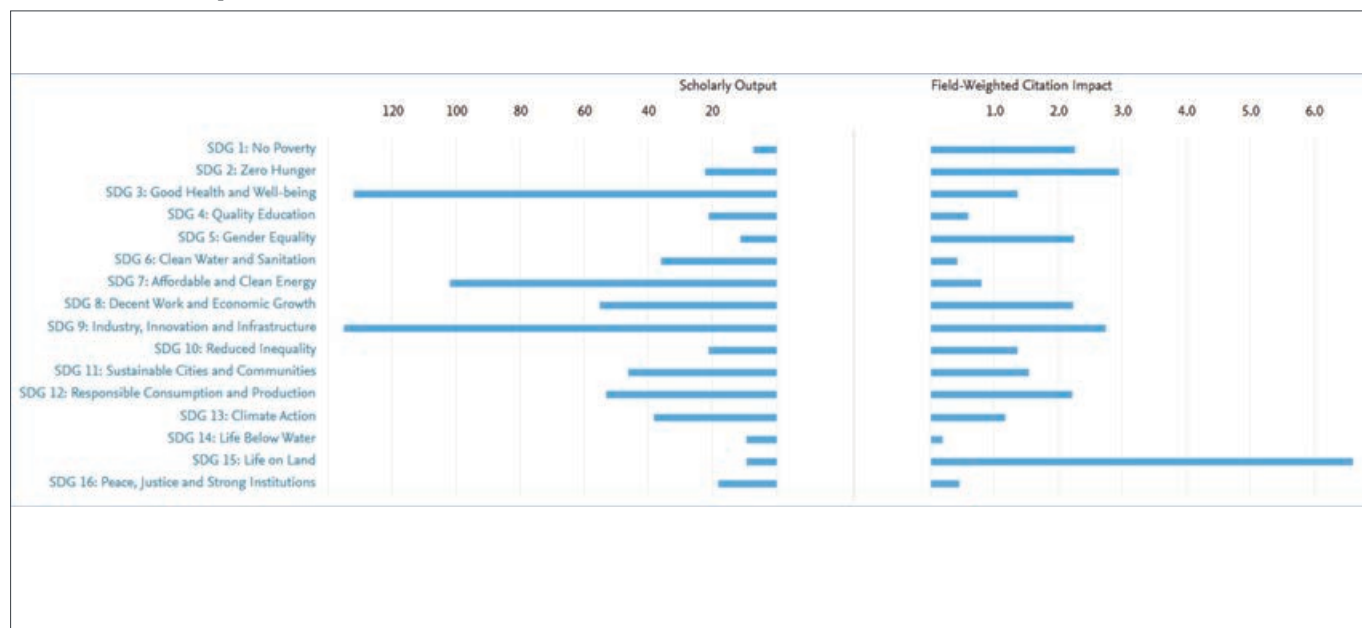
### Publication by Journal Quartile



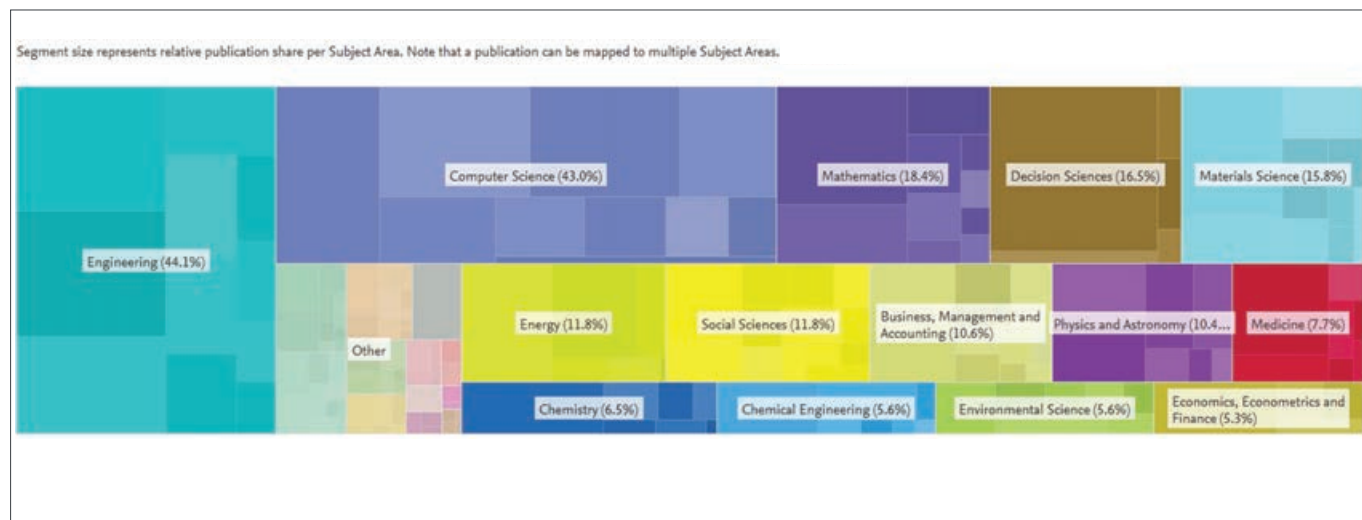
## Geographical Collaboration Overall



## Publication by SDG



## Subject Areas



# ABOUT ALLIANCE UNIVERSITY

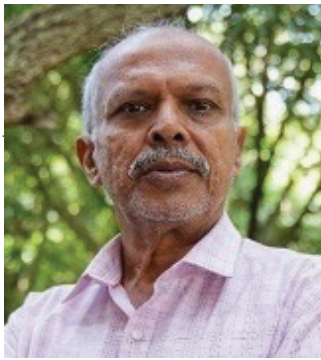
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Alliance University is a Private University established in Karnataka State by Act No.34 of year 2010 and is jointly recognized by the University Grants Commission (UGC), New Delhi, Bar Council of India (BCI) and the All-India Council for Technical 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.





## MODELING THE ENABLERS OF AACSB IMPLEMENTATION IN BUSINESS SCHOOLS: ISM-FUZZY MICMAC ANALYSIS

**Kundu G.K.**; Moovendhan M.V.; Wankhade N.G.

*Journal of Applied Research in Higher Education* Volume 16, Issue 5, Pages 1688 – 1705 27 November 2024

### Dr. Goutam K. Kundu

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## Modeling the enablers of AACSB implementation in business schools: ISM-Fuzzy MICMAC analysis

Goutam Kumar Kundu, M.V. Moovendhan, Nilesh G. Wankhade

*Journal of Applied Research in Higher Education*

DOWNLOADS

### Abstract

The study aims to explore and classify the key enablers of the Association to Advance Collegiate Schools of Business (AACSB) implementation in business schools. Design/methodology/approach: By applying the Interpretive Structural Model (ISM) approach, it builds a hierarchical model of the identified enablers of AACSB implementation. Additionally, the Fuzzy Matriced Impacts Croises-Multiplication Applique and Classement (FMICMAC) technique is used to classify and determine the influence of these enablers on the implementation of AACSB accreditation. Findings: The paper presents an ISM model of the identified enablers and draws managerial insight from it. Categorization of the key enablers into four groups helps in understanding the

relative influence of each group of enablers on the AACSB implementation in business schools. Research limitations/implications: The proposed model of the key enablers will help business schools that are pursuing AACSB accreditation prioritize the enablers. As the study has considered experts' opinions to establish the model, some amount of bias cannot be discounted. Originality/value: The development of the ISM model of the key enablers of AACSB implementation in business schools is a unique attempt. The findings will help business schools focus on the key enablers that influence implementation of AACSB standards.

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**Author keywords-** AACSB; Accreditation; Enablers; FMICMAC; ISM



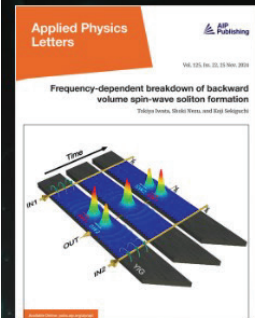
## THE EFFECT OF SYNTHESIS TECHNIQUES ON THE GAS SENSING PROPERTIES OF TiO<sub>2</sub>/SiC/CoFe<sub>2</sub>O<sub>4</sub> NANOCOMPOSITES AS GAS SENSOR

Khan M.; Aamir L.; **Rathore D.**; Albaqawi H.S.; Othman A.A.M.; Mitra S.

*Applied Physics Letters* Volume 125, Issue 19 4 November 2024 Article number 191902

### Dr. Deepshikha Rathore

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**Applied Physics Letters**  
Vol. 125, No. 22, 25 Nov 2024  
Frequency-dependent breakdown of backward volume spin-wave soliton formation  
Tajima, Hara, Shiki, Hara, and Endo

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**Volume 125, Issue 22,**  
**25 November 2024**

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### Abstract

This study investigates the impact of two distinct methodologies on the structural, morphological, and gas sensing properties of TiO<sub>2</sub>/SiC/CoFe<sub>2</sub>O<sub>4</sub> (TSC) nanocomposites determined using x-ray diffraction (XRD), scanning electron microscopy (SEM), LCR meter, and gas sensing unit respectively. The TiO<sub>2</sub>/SiC/CoFe<sub>2</sub>O<sub>4</sub> nanocomposites were synthesized using chemical co-precipitation method (C-TSC) and the solid state method (G-TSC). The Scherrer formula was used to calculate the average grain size of C-TSC and G-TSC, which was estimated to be  $8 \pm 2$  nm and  $10 \pm 2$  nm, respectively. The formation of TSC nanocomposites was confirmed by XRD, SEM, and EDX analysis. The

response (%) toward ethanol and NH<sub>3</sub> gas was tested as a function of flow rate (ppm) and temperature from room temperature (28 °C) to 300 °C. The response (%) was observed to be increasing with increasing temperature and three intermediate temperatures were found. The response and recovery time were also measured with varying gas concentrations. The long-term stability of devices was tested up to 30 days and less variation in result was found, which confirms stability of sensor. The material synthesized using chemical co-precipitation method (C-TSC) shows better properties than G-TSC.

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## FREQUENCY SELECTIVE ASYMMETRIC COUPLED-FED (ACS) ANTENNA USING ADDITIVE MANUFACTURING

Lamsal S.; Uya A.; **Itapu S.**; Li F.X.; Cortes P.; Borra V.

*Memories - Materials, Devices, Circuits and Systems Open Access Volume 8 August 2024 Article number 100111*

### Dr. Srikanth Itapu

Acting Head of Department - Electronics and Communication Engineering,  
Alliance College of Engineering and Design,  
Alliance University, Bangalore, INDIA



## Memories - Materials, Devices, Circuits and Systems

Open access

### Abstract

In this study, the development of diverse antenna designs using additive manufacturing processes, specifically spanning from L-band to K-band is proposed. All designs are implemented on a flexible FR4 substrate to make them suitable for wearable sensors and biomedical applications. The fabrication process involves the utilization of aerosol jet printing with nanoparticle silver ink, followed by curing in a vacuum chamber. Additionally, screen printing with copper paste is employed as another method, with subsequent curing in a laminator. The reflection coefficient ( $S_{11}$ ) and radiation patterns for the simulated

design and fabricated samples were found to align closely. The achieved return loss consistently reaching  $-10$  dB across fairly large operating frequency range underscores the efficacy of the proposed antennas and their associated additive manufacturing mechanisms. The design and simulation were performed using Ansys high frequency structural simulator (HFSS), and the parameters under test for the fabricated antennas were validated using a vector network analyzer (VNA) to assess overall performance.

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## PREDICTION OF ELECTRICITY CONSUMPTION USING AN INNOVATIVE DEEP ENERGY PREDICTOR MODEL FOR ENHANCED ACCURACY AND EFFICIENCY

Ragupathi C.; Dhanasekaran S.; **Vijayalakshmi N.**; Salau A.O.

*Energy Reports* Volume 12, Pages 5320 – 5337 December 2024

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Energy Reports

Open access

8.2

CiteScore

4.7

Impact Factor

### Abstract

Accurate forecasting of electricity consumption is crucial for efficient energy management and planning. Traditional models often struggle to capture the complex, nonlinear relationships inherent in energy consumption data, leading to less reliable predictions. In the quest to improve the accuracy and efficiency of electricity consumption predictions, we introduce the Deep Energy Predictor Model (DEPM). This innovative hybrid model combines the strengths of XGBoost for classification and Deep Neural Networks (DNN) for deep learning (DL) capabilities. The model leverages advanced feature extraction techniques using Cascaded ResNet, ensuring the capture of intricate patterns within

the data. Implemented in Python, the DEPM highlights an impressive accuracy of 98 %, with a precision of 0.97, recall of 0.99, and an F1-score of 0.98, setting a new standard for predictive models in the energy sector. This study elaborates on the model architecture, implementation details, and the evaluation metrics that underscore the model's superior performance. Our results demonstrate the potential of DEPM to significantly enhance the reliability of electricity consumption forecasts, providing a robust tool for energy management and planning.

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**Author keywords-** Cascaded ResNet; Deep energy predictor model; Deep neural networks; Electricity consumption prediction; Feature extraction; Hybrid model; XGBoost



## THE IMPACT OF CHATGPT ON MASS COMMUNICATION: TRANSFORMING DIGITAL CONTENT MANAGEMENT

Khan A.S.; Singh B.P.; **Goel R.**; Soni K.; Tewari P.; Bale A.S.; Mittal S.; Savadatti M.B.  
*Frontiers in Health Informatics* Volume 13, Issue 3, Pages 5915 – 5923 9 October  
2024

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Frontiers in Health Informatics ISSN-Online:  
2676-7104

[www.healthinformaticsjournal.com](http://www.healthinformaticsjournal.com)

2024; Vol 13: Issue 3

Open Access

### The Impact of ChatGPT on Mass Communication: Transforming Digital Content Management

Abdul Salam Khan<sup>1</sup>, Bhanu Pratap Singh<sup>2</sup>, Rahul Goel<sup>3\*</sup>, Kanak Soni<sup>4</sup>, Pranav Tewari<sup>5\*</sup>, Ajay Sudhir  
Bale<sup>6\*</sup>, Saurabh Mittal<sup>7\*</sup>, Mamta B Savadatti<sup>8</sup>

### Abstract

Rapid growth of ChatGPT in mass media methods have changed how Information was created, shared and used in the digital age. This work focuses on multifaceted impact of various technology in analysis of various case studies such as stack overflows use of AI content ban in education Institutions banning the AI and uses in mental health scenario. It also reveals a complex landscape where different accessibility and interaction

capabilities exist along with challenges in content accuracy, bias, mitigation, confidential considerations. This work also focuses on the critical need for methods to integrate AI and Mass Communication while making sure that the technology has transformative benefits and are always matched.

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**Author keywords-** AI; ChatGPT; digital age; education; mass communication



## ISOLATION AND CHARACTERIZATION OF BIOMASS WASTE BASED BIOPLASTICIZER FROM EUCALYPTUS LEAF: A SUITABILITY ANALYSIS OF BIOFILLER FOR POLYMERIC COMPOSITES

**Suyambulingam I.**; Narayanaperumal S.; Gapsari F.; Divakaran D.; Senthamaraikannan P.; Rajeshkumar G.; Hassan M.Z.

*Results in Engineering Open Access Volume 24 December 2024 Article number 103217*

### Dr. Indran Suyambulingam

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



Results in Engineering

Open access

5.8

CiteScore

6.0

Impact factor

### Abstract

Plasticizers improve polymeric materials' properties and processability as additives. Currently, a variety of liquid synthetic plasticizers derived from fossil fuels are available. The environmental unsuitability of these materials could potentially lead to adverse effects on the environment. When we compare solid and liquid plasticizers, we find an infinite variety of liquid plasticizers. As a result, our work focuses on the extraction of plasticizers from plant sources. Accordingly, the plasticizer is extracted from eucalyptus leaves via solvent purification and surface catalysts. Research was conducted utilizing X-ray diffraction (XRD), Fourier transform infrared (FTIR) spectroscopy, and Ultraviolet (UV) visible spectroscopy to determine the characteristics of plasticizer. The scanning electron microscopy (SEM) and energy dispersive spectrum

(EDS) analysis are used to analyze the surface morphology of the isolated plasticizer. The plasticizer's UV examination reveals active absorption at 375.21 nm. The plasticizer was determined to have a lower density of 0.941 g/cm<sup>3</sup>. The plasticizer that was extracted had a low solubility in water and organic solvents while possessing an estimated molecular weight of 340. The glass transition temperature of plasticizer was also examined using differential scanning electron microscopy analysis and found to be 64.17 °C. The crystallinity index and size were found to be 34.08 % and 28.57 nm, respectively. The characteristic features obtained were well-suited for use as filler in polymer composite materials.

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**Author keywords-** Biofiller; Bioplasticizer; Eucalyptus leaf; Macromolecules



## PHOTON-COUNTING THREE-DIMENSIONAL FLUORESCENCE IMAGING BASED ON THE TRANSPORT OF INTENSITY EQUATION

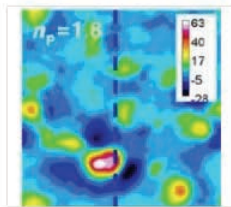
Matsuda S.; Shoda M.; Yoneda N.; Kumar M.; Murata T.; **Muniraj I.**; Awatsuji Y.; Matoba O.

*Optics Express* Volume 32, Issue 23, Pages 42005 – 42015 4 November 2024

### Dr. Inbarasan Muniraj

Assistant Professor,  
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Optics Express Vol. 32, Issue 23, pp. 42005-42015 (2024) • <https://doi.org/10.1364/OE.540000>



### Photon-counting three-dimensional fluorescence imaging based on the transport of intensity equation

Shiori Matsuda, Marin Shoda, Naru Yoneda, Manoj Kumar, Takashi Murata, Inbarasan Muniraj, Yasuhiro Awatsuji, and Osamu Matoba

### Abstract

A transport of intensity equation (TIE) based three-dimensional (3D) fluorescence imaging using photon-counting detection was proposed for low light-level bioimaging applications. The number of photons required to achieve the quantitative phase measurement using the proposed system was investigated

experimentally and numerically. Results show that the feasibility of reconstructing phase information with an average number of photons is greater than about 9 per pixel in our plant cells.

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## EFFECTS OF CASHEW NUTSHELL BIOFILLERS ON THE MECHANICAL AND THERMAL BEHAVIOUR OF BASALT/HIBISCUS VITIFOLIUS HYBRID FABRICS REINFORCED POLYMER BIOCOMPOSITES.

Sathishkumar T.P.; **Rajeshkumar L.**; Rajini N.; Sivalingam S.; Gopinath R.;  
Santhoshkumar S.; Sathishkumar M.; Ramesh M.

*Scientific reports Open Access Volume 14, Issue 1, Pages 27636 12 November 2024*

### Dr. Rajeshkumar Lakshminarasimhan

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### Effects of cashew nutshell biofillers on the mechanical and thermal behaviour of Basalt/*Hibiscus vitifolius* hybrid fabrics reinforced polymer biocomposites

[T. P. Sathishkumar](#), [L. Rajeshkumar](#) , [N. Rajini](#), [S. Sivalingam](#), [R. Gopinath](#), [S. Santhoshkumar](#), [M.](#)

### Abstract

Basalt-based natural fiber hybrid composites with fillers are always the most anticipated composite material candidates for lightweight structural applications. Current work focusses on the preparation, characterization and testing of Basalt (B)/Hibiscus vitifolius (HV) based epoxy biocomposites with and without cashew nutshell fillers. Individual fiber reinforced composites (with 40 vol% of fibers) and hybrid composites (with 40 vol% of fibers in the ratio 1:1) filled with 10-30 vol% of fillers were manufactured using compression moulding techniques. The X-ray diffraction spectrum showed the crystal size and crystallinity index for all biocomposites. It showed a monoclinic crystal structure with an irregular surface of the fiber and filler. The FTIR spectrum showed the chemical composition presented in the biocomposites. The presence of filler and fibers

was confirmed by different spectral peaks. Hybrid biocomposites were then subjected to mechanical and thermal investigations. The mechanical properties of the biocomposites showed that the tensile, flexural, and impact strength of the biocomposites varies with the concentration of the cashew nutshell filler. The surface morphology of the fractured sample showed the presence of fabric layer, fiber fracture and pull out, and homogenous dispersion of the fillers in the biocomposites. Thermal degradation curves showed that the thermal stability of biocomposites is improved by adding filler up to 20 vol% because the filler acted as a barrier element for the thermal degradation of biocomposites. From the results, it could be understood that these biocomposites find their applications probably in lightweight structures.

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**Author keywords-** Basalt fiber; Cashew nut filler; Hibiscus vitifolius fiber; Hybrid biocomposites; Mechanical properties; Thermal properties



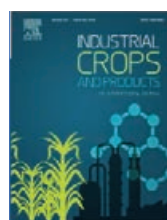
## COMPREHENSIVE CHARACTERIZATION OF BIOPLASTICIZER FROM THE MURRAYA KOENIGII LEAVES: FROM BIOMASS TO BIOMATERIAL FOR POLYMER COMPOSITE APPLICATIONS

Begum S.S.; Divakaran D.; **Suyambulingam I.**; Senthamarai Kannan P.; Handayani M.; Murali A.; Han S.S.

*Industrial Crops and Products* Volume 222 15 December 2024 Article number 119950

### Dr. Indran Suyambulingam

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



Industrial Crops and Products

Supports open access

9.5

CiteScore

5.6

Impact Factor

### Abstract

The world is moving toward sustainable products in almost all fields. As non-renewable resources are used and getting exhausted, the search for renewable, greener, and sustainable alternatives has become the most preferred option currently. Overall, polymer-based materials are used almost in all products for both in industrial and domestic purposes. One of the main additives used during the processing of any polymeric materials is plasticizers (PSs). Most of the PSs are toxic, which is not welcoming one in current situation. Bioplasticizers (BPs) have become a recent research study option focus to overcome this drawback. In this investigation, *Murraya koenigii* (MK), a native tree, was chosen for the extraction of BPs (MKBP) from its leaves (MKTL) and subjected to various analyses including Fourier transform infrared spectroscopy

(FTIR), X-ray diffraction (XRD), UV–visible spectroscopy, thermogravimetric analysis (TGA), differential scanning calorimetry (DSC), scanning electron microscopy (SEM), and atomic force microscopy (AFM). The presence of FTIR peaks showed the possibility of PS similarities with peaks at 1396 cm<sup>-1</sup> and 1214 cm<sup>-1</sup>. XRD confirmed the crystallinity of the MKBP with a crystallinity index (CYI) of 92.4 % and the crystallite size of 0.033 μm. UV analysis resulted in a maximum peak at 358.41 nm. TGA reported the maximum degradation temperature of 377.3 °C. DSC analysis showed a glass transition temperature (T<sub>g</sub>) of 68.89 °C. SEM analysis confirmed a high probability of blending with the extracted MKBP as the extract possessed a rough surface. AFM revealed the surface roughness that matched the SEM results.

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**Author keywords-** Biofiller; Biomaterial; Bioplasticizers; *Murraya koenigii*; Plasticizers; Sustainable



## NEXT GENERATION SEQUENCING DATA PLATFORM OPTIMIZATION FRAMEWORK

Maruthi P.B.; Yamuna R.; Kumar R.P.; **Nair R.R.**

15<sup>th</sup> International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2024 Volume 2, Pages 6056 - 60622024 15th International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2024 Hyderabad 21 June 2024 through 22 June 2024 Code 203500

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*Grenze International Journal of Engineering and Technology, June Issue*

## Next Generation Sequencing Data Platform Optimization Framework

P. Baby Maruthi<sup>1</sup>, Dr. R. Yamuna<sup>2</sup>, Rajath Kumar P<sup>3</sup> and Dr. Rekha R Nair<sup>4</sup>

Next generation sequencing (NGS) technology has recently been introduced into clinical diagnostics, having already profoundly changed the nature and scope of genomic research in previous years. The large volume of data generated at relatively low cost makes NGS an ideal platform for comprehensive mutation analysis of both constitutional disorders (i.e. germline alterations) and cancer diagnostics (i.e. somatic

alterations). However, with the advent of NGS, clinical laboratories can offer cost-effective comprehensive gene panels for several complex inherited disorders. The main aim of this research paper is to process and analyze large-scale genomic data, enabling valuable insights into the genomic landscape of cancer and facilitating precision oncology initiatives.

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**Author keywords-** Gene Expression Analysis; Genome; Next Generation Sequencing



## ORGANIC FARMING AUTOMATION TO REVOLUTIONIZE THE AGRICULTURAL INDUSTRY THAN TRADITIONAL FARMING PRACTICES USING IOT AND TECHNOLOGICAL DEVELOPMENT

**Geetha Rani E.;** Chalasani R.; Anusha D.; Dhanalakshmi M.; Vadlamudi S.

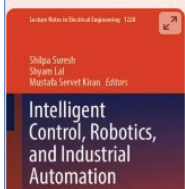
*Lecture Notes in Electrical Engineering Volume 1220 LNEE, Pages 333 – 350 2024  
International Conference on Robotics, Control, Automation and Artificial Intelligence,  
RCAAI 2023 Manipal 12 October 2023 through 14 October 2023 Code 321689*

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Alliance College of Engineering and Design

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## Intelligent Control, Robotics, and Industrial Automation

Proceedings of International Conference, RCAAI 2023

Conference proceedings | © 2024

### Abstract

Agriculture has remained the spine of human sustenance on earth. Since times unknown, humans have learned and developed methods to produce food and other resources for their livelihood. Agriculture has seen large developments, especially in the last century. Scientific methods have accelerated the process of agriculture to a large extent. These developments have improved productivity by leaps and bounds. Though these developments come with a lot of benefits, they also include several demerits that adversely affect the soil, humans, and livestock. To retain and multiply the benefits contributed by this scientific development and to overcome the demerits and challenges faced in today's agricultural practices, this paper aims at discussing methodologies that can be used to build an agricultural model that is much simpler and more

efficient. The model aims at automation using IoT that could lead to minimized labor efforts by almost refraining human intervention in agricultural practices. Machine learning algorithms can be used for weather and soil-based crop detection for better productivity. The downside caused due to the use of synthetic chemicals can be overcome using organic methods. A web portal to facilitate direct producer-to-consumer retail can be deployed to curb the exploitation of farmers by the elimination of middlemen. Hence, the paper aims at developing an agricultural model based on IoT, machine learning, organic farming, and a web portal for direct producer-to-consumer retail.

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**Author keywords-** Automation; Convolutional neural network; Deep learning neural network; Internet of Things (IoT); Machine learning; Organic farming; Producer-to-Consumer retail; Random forest; Soil infertility; Technological development



## EMBEDDED-CORE FIBER-BASED MACH-ZEHNDER INTERFEROMETER ENHANCED BY CASCADED LONG-PERIOD GRATINGS FOR SENSING APPLICATIONS

Mishra V.; Kotian A.S.; Prasad V.; Mishra A.

Proceedings of SPIE - The International Society for Optical Engineering Volume 13276  
2024 Article number 1327608 2nd International Conference on Current Trends in Physics  
and Photonics, ICCTPP 2024 Pune 9 July 2024 through 11 July 2024 Code 203351

### Dr. Vivekanand Mishra

Professor,  
Department of Sciences,  
Alliance University, Bangalore, INDIA

## Embedded-core fiber-based Mach-Zehnder interferometer enhanced by cascaded long-period gratings for sensing applications

*Vivekanand Mishra, Anjali S. Kotian, Vipin Prasad, Anusha Mishra*

### Abstract

In this work, we propose and analyse the performance of a cascaded long period grating (LPG) coupled with an embedded-core Fiber-based Mach-Zehnder interferometer (MZI) for sensing applications. We investigate the improved sensing capabilities made possible by this hybridized setup through experimental. By adding further phase shifts to the interferometric output, the cascaded LPGs allow for the accurate detection of environmental variables like temperature and refractive index. We optimize for optimal sensitivity

and accuracy by methodically analysing the parameters on the sensor performance. However, by employing cascaded LPFGs instead of a single LPFG, we overcome this limitation and unlock new potential for sensing applications. According to our experimental work, the suggested MZI-LPG sensor platform has a lot of potential for sensing. This might lead to improvements in industries.

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**Author keywords-** Embedded-core; Long Period Grating (LPG); Mach-Zehnder interferometer (MZI); Refractive Index; sensing



## AI POWERED SENTIMENT ANALYSIS OF SOCIAL MEDIA PRESENCE

**Babu T.; Rajesh Sharma R.; Rani K.S.K.; Sungheetha A.;** Priyadarshini B.; Nivetha A.  
2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 -  
Proceedings 2024 2<sup>nd</sup> IEEE International Conference on Advances in Information Technology,  
ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115

### Dr. Tina Babu

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## AI Powered Sentiment Analysis of Social Media Presence

Publisher: IEEE

Cite This

PDF

[Tina Babu](#) ; [Rajesh Sharma R](#) ; [K. Sasi Kala Rani](#) ; [Akey Sungheetha](#) ; [B. Priyadarshini](#) ; [A. Nivetha](#) **All Authors**

### Abstract

Basalt-based natural fiber hybrid composites with fillers are always the most anticipated composite material candidates for lightweight structural applications. Current work focusses on the preparation, characterization and testing of Basalt (B)/Hibiscus vitifolius (HV) based epoxy biocomposites with and without cashew nutshell fillers. Individual fiber reinforced composites (with 40 vol% of fibers) and hybrid composites (with 40 vol% of fibers in the ratio 1:1) filled with 10-30 vol% of fillers were manufactured using compression moulding techniques. The X-ray diffraction spectrum showed the crystal size and crystallinity index for all biocomposites. It showed a monoclinic crystal structure with an irregular surface of the fiber and filler. The FTIR spectrum showed the chemical composition presented in the biocomposites. The presence of filler and fibers

was confirmed by different spectral peaks. Hybrid biocomposites were then subjected to mechanical and thermal investigations. The mechanical properties of the biocomposites showed that the tensile, flexural, and impact strength of the biocomposites varies with the concentration of the cashew nutshell filler. The surface morphology of the fractured sample showed the presence of fabric layer, fiber fracture and pull out, and homogenous dispersion of the fillers in the biocomposites. Thermal degradation curves showed that the thermal stability of biocomposites is improved by adding filler up to 20 vol% because the filler acted as a barrier element for the thermal degradation of biocomposites. From the results, it could be understood that these biocomposites find their applications probably in lightweight structures.

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**Author keywords-** AI-powered framework; Decision-making; Machine learning; Natural language processing; Public perception; Social media sentiment analysis

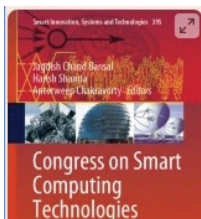


## AUTO-ENCODER CONVOLUTIONAL NEURAL NETWORK (AECNN) FOR APPLE FRUIT FLOWER DETECTION

Rajagopal M.; **Sathesh Kumar K.**; Nagaraja P.; Sivasakthivel R.; Sivaraman G.  
*Smart Innovation, Systems and Technologies Volume 395 SIST, Pages 95 – 104 2024*  
*Congress on Smart Computing Technologies, CSCT 2023 New Delhi 2 December 2023*  
*through 3 December 2023 Code 322249*

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## Congress on Smart Computing Technologies

Proceedings of CSCT 2023, Volume 1

Conference proceedings | © 2024

### Abstract

The yield estimation task altogether relies upon the way toward identifying and checking the quantity of fruits on trees. In production of fruit, basic yield the board choices are guided through the bloom frequency, i.e., the quantity of the flowers that are present in a plantation. The intensity of bloom technique is still commonly assessed by methods for human visual investigation. Mechanized PC vision frameworks for flower recognizable proof depend closely on designed procedures which function just under explicit conditions and with restricted execution. This work comprises four significant advances, (i) system preparing for Fully Convolutional Network (FCN), (ii) preprocessing, (iii) component extraction, (iv) division. Initially, a strategy for assessing high-resolution pictures with deep FCN on Graphics Processing Unit (GPU). Then, non-linear and linear algorithms are presented for lessening the

image noise, so the exact flower identification can be ensured. The next phase of the work handles the highlight extraction for diminishing the quality of the prime assets which are needed for handling without compromising on data applicable. By applying Local Binary Pattern (LBP), surface example likelihood can be summed up into a histogram. At last, isolate an image with high resolution into sub patches, assess all patches with the help of AECNN, at that point apply the refinement calculation on acquired score maps to figure out the final version of the mask segmentation. Trial results are led utilizing two datasets on flower pictures of AppleA and AppleB. Results are estimated regarding the measurements like Precision (P) and Recall (R).

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**Author keywords-** Auto-encoder convolutional neural network (AECNN); Fully convolutional network (FCN); Graphics processing unit (GPU); Local binary pattern (LBP)



## IMPROVING BREAST CANCER DIAGNOSIS THROUGH MULTI-CLASS SEGMENTATION USING ATTENTION UNET MODEL

**Ghantasala G.S.P.**; Unhelkar B.; Chakrabarti P.; Vidyullatha P.; Pyla M.

2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 - Proceedings 2024 2nd IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115

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### Improving Breast Cancer Diagnosis through Multi-Class Segmentation using Attention UNet Model

Publisher: IEEE

Cite This



G S Pradeep Ghantasala ; Bhuvan Unhelkar ; Prasun Chakrabarti ; Pellakuri Vidyullatha ; Meghana Pyla [All Authors](#)

### Abstract

One of the prominent causes of death for women universally is breast cancer. The number of early deaths is reduced with early detection. Using an ultrasound scan, the data examine the ultrasound images of breast cancer. Three categories, including normal, benign, and malignant images, comprise the Breast Ultrasound Dataset. Incorporating machine learning with breast ultrasound images might yield significant outcomes for the identification, classification, and segmentation of breast cancer. Through a mediocre image size of 500 500 pixels, the collection comprises 750 images. Attention U-Net/UNet is the best-known model for Multi-Class Segmentation to create an attention U-Net Model. The Model will consist of a Decoder Block Encoder Block and an Attention Gate. The attention gate layers have neurons with sizes of 256, 128, and 64, which typically correspond to the number of channels in the feature maps. The output layer in the U-Net model

characteristically consists of a single convolutional layer through a kernel size of 1 1. The activation function used in the output layer was sigmoid; whichever is collective for binary classification tasks like image segmentation. The sigmoid activation function outputs values between 0 and 1, representing the possibility of each pixel fitting to the target class. The loss function stated is "binary\_crossentropy," which is appropriate in binary classification tasks. The optimizer specified has Adam, which is well-liked for neural network training because of its adaptable learning rate characteristics. In contrast to conventional gradient descent techniques, the Adam optimizer adjusts the learning rate during training, which might result in faster convergence and improved results with 98% accuracy at epoch 17 with a validation loss of 0.05.

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**Author keywords-** Adam Optimizer; Decoder Block; Encoder block; Learning rate; Segmentation; Sigmoid Function; UNet Model



## DISTRIBUTED FRAMEWORK FOR POTHOLE DETECTION AND MONITORING USING FEDERATED LEARNING

**Ezil Sam Leni A.; Shalen S.**

*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 – Proceedings 2024 2nd IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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### Abstract

Transport service monitoring and upkeep are essential components of smart city initiatives. In India, the economy is greatly impacted by the road transport sector. In 2021, the Ministry of Road Transport and Highways Transport, Government of India, produced a report with statistical data on traffic accidents. This study proposes a distributed infrastructure for the monitoring, detection, and reporting of potholes to the appropriate authorities. In a distributed environment, the nodes are the edge devices, and local edge servers, and global servers. The edge devices receive the initial model to be employed from the global server. The YOLOv8 model for pothole detection is used in the edge devices. The edge devices run the pothole detection model, gather the pothole images on their path, and

send the updates to the nearby edge server. The local edge server selects the clients for its aggregation process, aggregates the model updates and sends the updates to the global server. The global server collects the updates from the local edge servers, performs aggregation and derives the updated model. The updated model has the information about the potholes received from the local edge servers and notifies the updates to the local edge servers and concerned authorities for monitoring and maintenance of road conditions. The entire process is implemented in FedCV distributed environment with the implementation using client-server model and aggregation entities.

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**Author keywords-** distributed framework; federated averaging; Federated Learning; pothole detection



## PREDICTIVE CRIME ANALYSIS: STATISTICAL APPROACH TO FORECAST CRIME HOTSPOTS USING RECURSIVE NEURAL NETWORK IN DEEP LEARNING

**Keerthika V.; Geetha A.; Raj D.M.D.**

*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 – Proceedings 2024 2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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### Predictive Crime Analysis: Statistical Approach to Forecast Crime Hotspots Using Recursive Neural Network in Deep Learning

Publisher: IEEE

[Cite This](#)

[PDF](#)

V. Keerthika ; A Geetha ; D M Deepak Raj [All Authors](#)

### Abstract

In the contemporary world, concentrating on predicting the crime analysis is important with increasing criminal & unethical activities all over the world, we are in the need to predict these actions and to formulate countermeasures using statistical/ML techniques. Predictive Policing involves data processing on a large scale to predict and prevent possible future crimes/disturbing activities. This includes utilizing past recorded criminal activities, demographic features, and so on. The method should be able to identify

the required patterns accurately and efficiently, and it must use methods that will mesh with law enforcement to make it easier for them to effectively handle these incidents. Using a Recursive Neural Network in Deep Learning (RNNDL) compute confidence rate by giving past predictions less weightage and recent predictions higher weightage, we would be able to figure out crime hotspots with a verified historical dataset of crime records efficiently.

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**Author keywords-** 112 emergency number; CMAPS; confidence rate optimization; confidence rate standardization; Optimized confidence; RNNDL

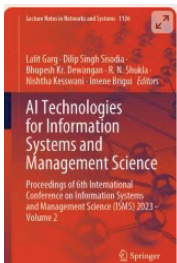


## ANALYSIS OF OBJECT IDENTIFICATION AND CLASSIFICATION USING YOLO AND RCNN

Mahajan S.; Rodge S.; Kuhikar O.; Farooqui S.; Quazi Z.; Shelke N.; **Patni J.C.**  
*Lecture Notes in Networks and Systems Volume 1136 LNNS, Pages 500 - 512* 2024  
*6th International Conference on Information Systems and Management Science, ISMS 2023 Malta 18 December 2023 through 19 December 2023 Code 321069*

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## AI Technologies for Information Systems and Management Science

Proceedings of 6th International Conference on Information Systems and Management Science (ISMS) 2023 - Volume 2

Conference proceedings | © 2024

### Abstract

Through an extensive review of existing literature, the study analyses various findings, highlighting the strengths and weaknesses of both methodologies. This research study compares You Only Look Once (YOLO) and Region-based Convolutional Neural Network (RCNN) in image processing. Focused on accuracy, speed, robustness and performance when integrated with other technologies, the analysis spans various scenarios, revealing YOLO's real-time processing prowess and scalability, contrasting with RCNN's accuracy and adaptability. The research

uncovers challenges in object identification techniques, guiding future AI advancements. This research paper is intended to compare the RCNN and YOLO algorithms for object identification and classification in various scenarios such as indoor, outdoor, specialized environments, challenging environments, miscellaneous, and with various real-life objects. It investigates the scenarios in which YOLO or RCNN is more favourable for use.

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**Author keywords-** Computer Vision; Convolutional Neural Network; Deep Learning; mAP; Object Detection; Region Proposed Network; Region-based Convolutional Neural Network; You Only Look Onc



## APPLICATION-BASED REVIEW OF SOFT COMPUTATIONAL METHODS TO ENHANCE INDUSTRIAL PRACTICES ABETTED BY THE PATENT LANDSCAPE ANALYSIS

Tamilselvan S.; Dhanalakshmi G.; Balaji D.; **Rajeshkumar L.**

*Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery* 2024

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#### Application-Based Review of Soft Computational Methods to Enhance Industrial Practices Abetted by the Patent Landscape Analysis

S. Tamilselvan, G. Dhanalakshmi, D. Balaji ✉ L. Rajeshkumar ✉

First published: 31 October 2024 | <https://doi.org/10.1002/widm.1564>

### Abstract

Soft computing is a collective methodology that touches all engineering and technology fields owing to its easiness in solving various problems while comparing the conventional methods. Many analytical methods are taken over by this soft computing technique and resolve it accurately and the soft computing has given a paradigm shift. The flexibility in soft computing results in swift knowledge acquisition processing and the information supply renders versatile and affordable technological system. Besides, the accuracy with which the soft computing technique predicts the parameters has transformed the industrial productivity to a whole new level. The interest of this article focuses on versatile applications of SC methods to forecast the technological changes which intend to reorient the progress of various industries, and this is ascertained by a patent landscape analysis. The patent

landscape revealed the players who are in the segment consistently and this also provides how this field moves on in the future and who could be a dominant country for a specific technology. Alongside, the accuracy of the soft computing method for a particular practice has also been mentioned indicating the feasibility of the technique. The novel part of this article lies in patent landscape analysis compared with the other data while the other part is the discussion of application of computational techniques to various industrial practices. The progress of various engineering applications integrating them with the patent landscape analysis must be envisaged for a better understanding of the future of all these applications resulting in an improved productivity.

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**Author keywords-** applications; patent landscape; productivity; soft computing; technology



## FRAUD DETECTION IN MONETARY TRANSACTIONS

**Nair R.R.;** Kaveri V.V.; Sivakumar S.; Srinithi Janani R.; **Babu T.;** **Rajesh Sharma R.**

*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024*

*– Proceedings 2024 2nd IEEE International Conference on Advances in Information*

*Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024*

*Code 203115*

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## Fraud Detection in Monetary Transactions

Publisher: **IEEE**

[Cite This](#)

[PDF](#)

[Rekha R Nair](#) ; [V. Vjeya Kaveri](#) ; [Shrinidhi Sivakumar](#) ; [Srinithi Janani R](#) ; [Tina Babu](#) ; [Rajesh Sharma R](#) **All Authors**

### Abstract

Fraudulent transactions pose significant challenges to the banking industry, leading to significant losses. Conventional identification methods often struggle to keep up with changing fraud techniques. In this study, proposed a new approach using a hybrid algorithm combining Bagged Trees Classifier and Random Forest. Bagged Trees Classifier classifies instances by tree structure, while Random Forest aggregates predictions from multiple trees to increase accuracy in detecting fraudulent behavior the proposed approach aims to overcome existing limitations role by reducing

false positives and improving detection accuracy. outline the method for data set partitioning, model selection, training, and evaluation, and demonstrate the effectiveness of our approach. By combining a bagged trees classifier with a random forest, the proposed approach provides a robust framework for detecting fraudulent transactions in banking, providing proactive anti-fraud strategies while reducing financial losses.

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**Author keywords-** Bagged trees classifier; Fraud detection; Machine learning; Monetary transactions; Random Forest Classifier



## OPTIMIZING OPTICAL LOOP INFRASTRUCTURE FOR HIGH-SPEED SWITCHING AND EFFICIENT BUFFERING

Rashmi; Mishra V.; Sukriti

*Proceedings of SPIE - The International Society for Optical Engineering Volume 13276 2024 Article number 132760C 2nd International Conference on Current Trends in Physics and Photonics, ICCTPP 2024 Pune 9 July 2024 through 11 July 2024 Code 203351*

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## Optimizing optical loop infrastructure for high-speed switching and efficient buffering

Rashmi, Vivekanand Mishra, Sukriti

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[Proceedings Volume 13276, Second International Conference on Current Trends in Physics and Photonics \(ICCTPP 2024\); 132760C \(2024\) <https://doi.org/10.1117/12.3042593>](#)

### Abstract

The integration of the storage of optical data using fiber loops and extremely rapid optical based switching via nonlinear optical loop mirrors (NOLMs) are recognized as an optimal approach for all-optical processing.

This article presents a novel integration of these technologies to create an efficient buffering-switching device aimed at mitigating signal contention. Through thorough analysis, we explore the limitations of this integrated device in achieving error-free processing

across multiple buffering cycles. Various factors, such as different types of noise leading to fluctuations in intensity of buffered and demultiplexed signals, are assessed. Additionally, we delve into the switching characteristics of NOLM demultiplexer to provide a comprehensive understanding of the device's performance.

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**Author keywords-** Buffering; Fiber loops; NOLM; Optical Switching



## FIBER-REINFORCED THERMOPLASTIC COMPOSITES FOR FUTURE USE IN AIRCRAFT RADOMES: BIOMIMETIC DESIGN APPROACHES AND ITS PERFORMANCES

Aina A.N.; Rizal M.A.M.; Rased M.F.A.; Hassan S.A.; Ng L.F.; **Rajeshkumar L.**; Ilyas R.A.; Israr H.A.

*Fibers and Polymers 2024*

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### Fiber-Reinforced Thermoplastic Composites for Future Use in Aircraft Radomes: Biomimetic Design Approaches and Its Performances



Fibers and Polymers

#### Abstract

The performance of polymer composites not only addresses challenges in aircraft components but also contributes to industries, such as automotive, architecture, marine, military, sports, and construction. Current manufacturing techniques and the expertise of engineers are crucial in identifying the most suitable biomimetic materials for specific applications. Based on the current literatures, the study on integrating biomimicry into fiber-reinforced thermoplastic composites to develop aircraft radome is still lacking. Thus, this article reviews various types of composites used in aircraft manufacturing, emphasizing the potential of nature-inspired designs to enhance structural performance, with a particular focus on radomes, which protect radar equipment. Bio-inspired designs, shaped by millions of years of evolution, have proven to be highly effective in creating optimized, complex forms that complement the versatility of polymer composites. Given that many current aircraft components are made from metals with little or no

shape optimization, applying biomimicry to aircraft radome design offers significant potential for creating lightweight, high-strength structures. The biomimetic approach using fiber-reinforced thermoplastic composites has emerged as a promising strategy for developing improved structural components, offering enhanced mechanical properties, reduced weight, and greater sustainability, paving the way for more efficient and environmentally friendly radome materials. A general overview of biomimicry in relation to aircraft radomes is provided, highlighting how composite materials have already contributed to successful innovations. The economic and environmental benefits of fiber-reinforced thermoplastic composites and biomimetic approaches are also discussed, with insights into materials that offer superior impact and chemical resistance at a lower cost.

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**Author keywords-** Aircraft radome; Biomimetics approach; Fiber-reinforced polymer composites; Thermoplastic composites



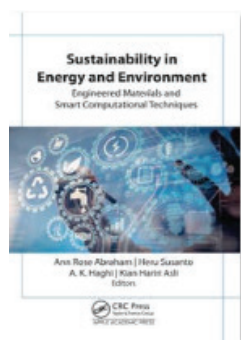
## CHAPTER 2: TWO-DIMENSIONAL (2D) MATERIALS-BASED NANOSTRUCTURED HYBRID COMPOSITES: A NEWER PARADIGM FOR ENERGY APPLICATION

Sharma N.; **Talreja N.**; Chauhan D.; Ashfaq M.

Sustainability in Energy and Environment: Engineered Materials and Smart Computational Techniques Pages 55 - 781 January 2024

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Chapter

## Two-Dimensional (2D) Materials-Based Nanostructured Hybrid Composites: A Newer Paradigm for Energy Application

By *Nidhi Sharma, Neetu Talreja, Divya Chauhan, Mohammad Ashfaq*

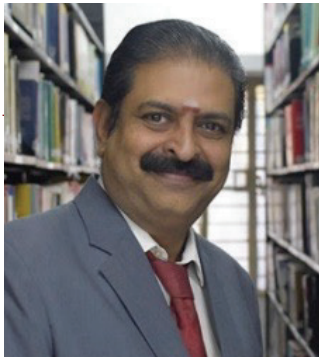
### Abstract

Presently, two-dimensional nanomaterials (2D-NM) are continuously gaining attention from researchers due to their extraordinary properties, such as high mechanical strength, high surface area, and electrical and optical properties. These properties make them promising candidates for various applications. The high surface area, atomic thickness, and tunable ability of 2D-NM offer advantages in terms of their applicability. The mechanical, electrical, and thermal properties of 2D-NM, along with their unique characteristics, greatly influence their potential applications and overall

applicability. This mini-review article focuses on the synthesis processes, composition, and crystal structure of 2D-NM. Additionally, the role of 2D-NM-based hybrid composites in solar cells and supercapacitor applications, based on their characteristics, is discussed. In conclusion, future challenges in the field of 2D-NM-based hybrid composites are addressed, taking into account their characteristic properties.

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**Author keywords-** doping; electrical stability; electrochemical deposition; graphene; hybrid materials; mechanical stability; solar cells; supercapacitors; two-dimensional (2D)



## THE IMPACT OF DIGITAL MARKETING ON ELECTRONIC BUSINESSES FROM A SUPPLY CHAIN PERSPECTIVE

**Aravamudhan V.**; AlWadi B.M.; Alghizzawi M.; **Mohanasundaram K.**; Alkhlaifat B.I.;  
Abualfalayeh G.; Ezmigna I.

*Pakistan Journal of Life and Social Sciences* Volume 22, Issue 2, Pages 7950 – 7964  
2024

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Pak. j. life soc. Sci. (2024), 22(2): 7950-7964 E-ISSN: 2221-7630;P-ISSN: 1727-4915



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<https://doi.org/10.57239/PJLSS-2024-22.2.00600>

RESEARCH ARTICLE

### The Impact of Digital Marketing on Electronic Businesses from a Supply Chain Perspective

### Abstract

As digital marketing keeps on growing, it has been very important for organizations to succeed. Usually, there are multiple engagements with digital marketing to solve unique challenges related to digital marketing while developing existing client potential. Various entrepreneurs and organizations have made their transactions with electronic business. Electronic businesses are broader than e-commerce, such as transactions based on e-commerce and the ones running traditionally but providing online activities. An e-commerce can run any part of internal processes like risk management, inventory management, human resources, and finance. For having e-business and e-commerce, it should manage additional sales or other activities of the company while selling products online. It may accelerate growth in revenue by making

the coordination tighter for end-to-end experience in different “Business-to-Customer (B2C) and Business-to-Business (B2B) client-base”. Digital economy has literally transformed the “supply chain management (SCM)” activities. Hence, this study aims to investigate the impact of digital marketing on electronic businesses with a perspective of supply chain management and discuss how to digitalize marketing activities to improve customer value. To fulfill these objectives, this study relies on primary data collected from online survey conducted through a self-structure questionnaire distributed among participants employed in various online businesses to ensure relevance.

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**Author keywords-** B2B; B2C; Digital marketing; Electronic businesses; SCM; Supply chain management



## AN EFFICIENT METHOD FOR SKIN CANCER DETECTION USING CONVOLUTIONAL NEURAL NETWORK

**Rajagopal R.; Karthik Kumar G.V.; Senbagavalli M.; Sai Priya P.D.**

*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 - Proceedings 2024 2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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### An Efficient Method For Skin Cancer Detection Using Convolutional Neural Network

Publisher: IEEE

[Cite This](#)

[PDF](#)

R Rajagopal ; Karthik Kumar G V ; Senbagavalli M ; P. Divya Sai Priya **All Authors**

### Abstract

Skin cancer poses a significant health risk, often overlooked despite its prevalence. Manual detection by clinicians may sometimes be inadequate, leading to the necessity of automated systems utilizing deep learning. In this study, we propose a computerized solution employing Convolutional Neural Networks (CNNs) to detect skin diseases from imaging data. By leveraging the Keras Sequential API, we design and train various neural network architectures, analyzing their

performances in skin cancer detection. Our custom CNN model achieves an accuracy of approximately 80%. Subsequently, we explore the efficiency of transfer learning models such as VGG11 to improve accuracy and for comparative analysis. Notably, the vgg16 architecture achieves the highest accuracy of 86% making it a competitive solution for skin cancer detection.

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**Author keywords-** Convolutional Neural Networks (CNN); KNN; Random Forest; Skin cancer Detection; SVM



## IMAGE-BASED HEMODYNAMIC AND RHEOLOGICAL STUDY OF PATIENT'S DISEASED ARTERIAL VASCULATURES USING COMPUTATIONAL FLUID DYNAMICS (CFD) AND FLUID–STRUCTURE INTERACTIONS (FSI) ANALYSIS: A REVIEW

Athani A.; Ghazali N.N.N.; Badruddin I.A.; Usmani A.Y.; Amir M.; **Singh D.**; Khan S.H.  
*Archives of Computational Methods in Engineering 2024*

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### Abstract

Vascular diseases, such as aneurysms and stenosis, significantly impact hemodynamic parameters and disrupt the structural integrity of the arterial layer. Computational Fluid Dynamics (CFD) simulations in realistic arteries with wall interactions can detect stenosis formation by identifying altered flows and variations in wall shear stresses. This review article aims to highlight the significance of CFD simulations in finding the evolution of arterial diseases based on CT (Computed tomography) scan images of actual patient data. Each article was evaluated based on various hemodynamic parameters, inflow pulsatile waveform nature, and blood rheological models, including Newtonian and Non-Newtonian. The review provides the outcomes of studies involving fluid and structure interactions. The challenges of CFD and Fluid–Structure Interaction (FSI) simulations are discussed using results derived from patient-specific CT

scan data. Different anatomical vessels reconstructed using medical images, and various inflow and outflow boundary conditions being applied to simulate the flow in these models and wall interaction with the fluid domain have been reported to analyze the flow behavior and predict arterial wall diseases. The article will be helpful to researchers and surgeons in analyzing diseased patient and developing a non-invasive-based system. The study emphasizes the potential of CFD simulations for identifying vascular diseases and predicting their evolution based on CT scan images of actual patient data. Additionally, the article highlights the need for more research to address the challenges associated with CFD and FSI simulations.

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## NEIGHBOURHOOD FIRST? STATUS QUO OF INDIA'S TRADE WITH THE NEIGHBOURS

Saikia M.; Hoque D.

*Foreign Trade Review 2024*

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### Abstract

Driven by the objective to create a congenial relationship with the neighbours, the Narendra Modi Government of India instituted the 'Neighbourhood First' policy (NFP) in 2014 which is a continuation of the neighbourhood policy with some new features. Sadly, despite India's diligent effort expended to enhance its relationship with its neighbours, all exercises were nugatory. It poses the question of how India can effectively pursue the objectives of its foreign policies. The realisation of the NFP's intended goals remains ambiguous. Consequently, it becomes imperative to assess the impact of Modi's NFP at this opportune moment. Bilateral trade serves as an essential indicator, reflecting the state of relationships between nations. Thus, this study raises two key questions: first, whether the neighbourhood factor

influences India's exports, and second, how the NFP affects India's trade with neighbouring countries. The study aims to quantify the impact of the neighbourhood on India's exports and evaluate the NFP's role in facilitating trade within the region. The findings reveal that the neighbourhood, as a collective entity, significantly influences India's exports to neighbouring countries. However, when considering individual countries, the results present a different perspective. Moreover, the study demonstrates that, despite the NFP's original intention to promote friendly relations with its neighbours, it has not been notably successful. The failure of this policy, along with India's deteriorating relationships with its neighbors, is evident in its export patterns. JEL Codes: F13, F14

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**Author keywords-** export; India; neighbour; 'Neighbourhood First Policy'



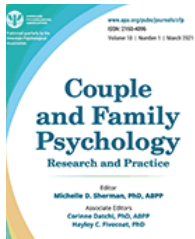
## UNDERSTANDING ROMANTIC RELATIONSHIPS USING STRENGTH AND STRAIN MODEL IN THE CONTEXT OF COVID-19

Adhikari A.; Shilpa K.S.

*Couple and Family Psychology: Research and Practice* 2024

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APA PsycArticles: Journal Article

Understanding romantic relationships using strength and strain model in the context of COVID-19.

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Adhikari, A., & Shilpa, K. S. (2024). Understanding romantic relationships using strength and strain model in the context of COVID-19. *Couple and Family Psychology: Research and Practice*.

### Abstract

The Strength and Strain Model (Slatcher & Selcuk, 2017) of marriage and physical health helps to comprehend the association between the quality of marital relationships and physical health. The article summarizes the interplay between relationships and physical health within the context of the COVID-19 pandemic. We begin with a brief review highlighting the impact of marital strengths (positive components of marriage), marital strains (negative components of marriage), other stressors, and individual differences on the overall physical well-being of individuals and couples. Amidst the pandemic, the strength aspect gains prominence, with the partner's responsiveness,

satisfaction, intimacy, psychological well-being, and resilience, acting as buffers against the other pandemic-related stressors. Positive interpersonal processes have the potential to reinforce the immune system and alleviate the health repercussions of the pandemic. Conversely, the strain aspect might exacerbate the health vulnerabilities by comprising the functioning systems of the body and amplifying the health issues. We conclude with a brief discussion of the promising implications and future directions in the study of interpersonal processes and physical health.

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**Author keywords-** COVID-19; health; interpersonal processes; marital quality; relationships



## APPROACH TO IDENTIFYING COUNTERFEIT PRODUCTS WITH QR CODES AND COMPUTATIONAL ALGORITHMS

Prabhu Shankar B.; Rajkumar N.; Viji C.; Dinesh Kumar K.; Saravanakumar S.; Mohanraj A. *Proceedings of the 5<sup>th</sup> International Conference on Smart Electronics and Communication, ICOSEC 2024 Pages 1203 – 12092 024 5th International Conference on Smart Electronics and Communication, ICOSEC 2024 Trichy 18 September 2024 through 20 September 2024 Code 203685*

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## Approach to Identifying Counterfeit Products with QR Codes and Computation Algorithms

Publisher: **IEEE** [Cite This](#) [PDF](#)

B Prabhu Shankar ; N Rajkumar ; C Viji ; K Dinesh Kumar ; S Saravanakumar ; A Mohanraj [All Authors](#)

### Abstract

The biggest challenge in the global market is Counterfeiting, it has undesirably affected consumer perception and damaged the brand reputation of the product. Recently few techniques used in the identification of counterfeit products include block chaining, RFID tags, and unique code techniques among others but they do not entirely control the existence of counterfeits in the market as well as losing their dependability and scalability. Consequently, these techniques are expensive and technologically advanced. This research presents a new approach based on reliable product authentication using QR code technology powered by mathematical computational algorithms. Employing implementing this system; however, customers can recognize fake goods and sustain the brand’s integrity. The proposed approach entails creating Unique QR codes for every product whose coded data contains the encrypted

product information. These include product numbers, manufacturing dates as well as batch numbers of the products which are hashed and then encrypted with sophisticated computational algorithms; these two algorithms secure the product, one generating QR codes for a product containing information thereof and the other that confirms if the consumer is holding a genuine item using a mobile application. Through experimental results, it was evident that the system is highly accurate, reliable, and speedy since verification times averaged below 1 second. This research also outlines some of the strengths of the proposed system including enhanced product originality as well as potential limitations such as internet connectivity and initial set-up costs. In future work, we will optimize our encryption algorithm and expand to other products within the system’s coverage area.

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**Author keywords-** Counterfeiting; Decryption; Encryption; Hashing; QRcode



## IMPROVING MULTIMODAL INTERACTIONS WITH CHATGPT BY INTEGRATING MACHINE LEARNING WITH TEXT, IMAGE, AND SPEECH PROCESSING

Poornima G.; Lezama C.R.Q.; Gowda V D.; Kumari S.; **Kashni T.**; Dadwal N.  
*8<sup>th</sup> International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud), I-SMAC 2024 – Proceedings Pages 780 - 786* 2024  
*8<sup>th</sup> International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud), I-SMAC 2024 Kirtipur 3 October 2024 through 5 October 2024 Code 203501*

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## Improving Multimodal Interactions with ChatGPT by Integrating Machine Learning with Text, Image, and Speech Processing

Publisher: IEEE

[Cite This](#)

[PDF](#)

Galiveeti Poornima ; Christian Rafael Quevedo Lezama ; Dankan Gowda V ; Sabnam Kumari ; Tarun Kashni ; Neeraj Dadwal **All Authors**

### Abstract

The combination of multimodal interaction in artificial intelligence has become another issue that continues to attract researcher's attention due to its capability to improve the naturalness and Natural Language Processing. This paper has offered a new approach to enhance the multimodal interactions in ChatGPT through the application of machine learning for text, image and speech. Using Convolutional Neural Network CNNs for image data, Long Short-Term Memory LSTM for temporal analysis of Voice data and Transformers for context analysis of text data. The experimental study proves the notion that the proposed system has a higher level of accuracy and less time

than the existing ones. The system suffisamment encode the temporal relations and required features for correct multimodal analysis. Also, the real-time analysis and feedback-rendering capacities contribute to the enhancement of performance in a progressive and innovative manner. These results point to fruitful avenues of future work in the areas of virtual assistants, customer service, and educational technologies. The study also underlines the necessity of the integrated processing of several modalities and provides the basis for follow-up works to develop and enhance such systems in various and limited-resource conditions.

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**Author keywords-** AI-driven communication; ChatGPT; image processing; interaction quality; machine learning; Multimodal interactions; speech processing; text processing; user experience



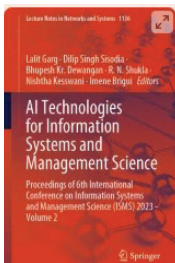
## ENHANCING FRUIT RECOGNITION WITH YOLO V7: A COMPARATIVE ANALYSIS AGAINST YOLO V4

Pandey A.; Kumar S.; Verma A.; Baijal S.; Dutta C.; Choudhury T.; **Patni J.C.**

*Lecture Notes in Networks and Systems Volume 1136 LNNS, Pages 330 – 342 2024  
6th International Conference on Information Systems and Management Science, ISMS  
2023 Malta 18 December 2023 through 19 December 2023 Code 321069*

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## AI Technologies for Information Systems and Management Science

Proceedings of 6th International Conference on Information Systems and Management Science (ISMS) 2023 - Volume 2

Conference proceedings | © 2024

### Abstract

This study uses YOLO v7 deep learning to recognize and localize fruits in complicated pictures. The detection effectiveness of YOLO v7 is compared to YOLO v4, a dominating fruit identification model. The YOLO v7 algorithm enhances fruit detection accuracy, as shown by increased average precision and other evaluation parameters. This study found that the algorithm might help manage planting activities and identify difficult situations. Fruit recognition and categorization in agriculture are stressed, as are deep learning models. The correct classification of fruits in complex environments remains difficult. The suggested solution uses YOLO v7's unique features to identify and locate fruits in complex surroundings. A comparative analysis showed that YOLO v7 outperformed v4 in fruit recognition and classification. The study classifies fruits into 16 distinct categories and examines the possible uses of the approach for different kinds

of agricultural products. Integrating supplementary datasets can enhance the deep learning algorithm's ability to differentiate and classify diverse agricultural commodities, thereby improving crop management strategies and streamlining processes such as automated sorting, quality assurance, and inventory supervision. The findings of this research facilitate the creation of fruit categorization technologies that operate in real-time across diverse settings, thereby conferring advantages to enterprises in the fruit industry. The aforementioned technologies can increase efficiency, improve productivity, optimize resource allocation, and reduce losses resulting from spoilage and infections. Implementing these technologies mitigates potential harm to essential goods, thereby safeguarding the quality of produce and the well-being of consumers. The results of this study make a valuable contribution to the progress of real-time fruit classification

technologies. This has practical implications for enterprises in the fruit industry, as it can enhance efficiency, generate financial gains, and safeguard commodities. The ramifications of these results hold

great importance for the triumph and endurance of the industry.

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**Author keywords-** deep learning; Fruit recognition; object detection; target detection; YOLO v4; YOLO v7



## EPILEPTIC SEIZURE DETECTION AND ANALYSIS USING MACHINE LEARNING

**Prabhu A.B.P.**; Prasad G.M.S.; Sharma T.; Bhatt C.; Taranath N.L.

*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 – Proceedings 2024 2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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## Epileptic Seizure Detection and Analysis Using Machine Learning

Publisher: **IEEE**

[Cite This](#)

[PDF](#)

[Aniruddha Prabhu B P](#) ; [Guru Prasad M S](#) ; [Tushar Sharma](#) ; [Chandradeep Bhatt](#) ; [Taranath N L](#) **All Authors**

### Abstract

Epilepsy, a neurological illness marked by recurring seizures, presents a severe public health issue. Early and reliable diagnosis of epileptic seizures is critical for timely treatment and improved medical outcomes. This research focuses on employing machine learning techniques for the identification and analysis of epileptic seizures. The Electroencephalogram (EEG) dataset, obtained from the University of California Irvine (UCI) Machine Learning Repository, contains recordings of brain activity, each spanning 23.6 seconds. The study unfolds with an extensive data collection process, followed by a detailed exploratory data analysis to uncover inherent patterns. Subsequently, data visualization techniques are applied to provide

insights into the unique characteristics of epileptic brain activity. Acknowledging the challenge of an imbalanced target variable ( $y$ ), a critical feature in our dataset, we implement the Minority Random Oversampling technique during data preprocessing. We utilize the Light Gradient Boosted Machine (LightGBM) model for our analysis. With the application of this sophisticated algorithm, our model attains an impressive 99.24% accuracy when evaluated on the testing data. The study contributes not only to the area of epilepsy research but also highlights the efficiency of a balanced dataset and a powerful machine learning model in enhancing seizure detection accuracy.

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**Author keywords-** Data Analysis; EEG; Epilepsy; LightGBM; Seizures



## NETWORK MODEL TO GENERATE VISUAL REALISM IMAGES FROM TEXTUAL DATA

Vidyullatha P.; Unhelkar B.; Chakrabarti P.; **Ghantasala G.S.P.**; Shaik A.; Pyla M.  
*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 – Proceedings 2024 2nd IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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## Network Model to Generate Visual Realism Images from Textual Data

Publisher: **IEEE**

[Cite This](#)

[PDF](#)

Pellakuri Vidyullatha ; Bhuvan Unhelkar ; Prasun Chakrabarti ; G S Pradeep Ghantasala ; Amjan Shaik ; Meghana Pyla **All Authors**

### Abstract

Generative Adversarial Networks (GANs) have the ability to produce realistic images from random noise vectors and has attracted a lot of attention in recent years. The textual input is discontinuous and requires efficient semantic information capture, extending GANs to create images from text descriptions has special obstacles. In this research, a unique GAN-based text-to-image creation method that makes use of conditional GAN architectures and text embeddings. The generator neural network in our suggested model converts text embeddings into appropriate image representations, whereas the discriminator network separates real images from those produced by the generator. This paper shows the strategies like multi-modal fusion mechanisms and attention mechanisms in the network architecture to help textual descriptions and visual information match. This method uses the benchmark datasets and show that it can produce

realistic and varied visuals that correspond with textual descriptions. Both qualitative and quantitative assessments demonstrate our model's capacity to grasp minute details and subtle semantic nuances found in the input text. In addition, we perform user studies to evaluate the fidelity and perceived quality of the generated images relative to ground truth images. Based on our experimental findings, it appears that the suggested framework for text-to-pixel image production provides both textual relevance and image quality. This paper illuminates how our methodology may be utilized in different settings, including virtual universes, PC supported plan, and the production of imaginative substance. We likewise accentuate future bearings and potential for profound learning and normal language handling procedures to further develop text- to-picture creating models' abilities.

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**Author keywords-** Conv2d; Discriminator; Generative Adversarial Networks; Generator; Leaky\_ReLu; Noise



## PARKINSON'S DISEASE DETECTION AND ANALYSIS USING MACHINE LEARNING

**Aniruddha Prabhu B.P.**; Bhatt C.; Mohd N.; Sharma T.; Singh M.

*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 – Proceedings 2024 2nd IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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## Parkinson's Disease Detection and Analysis Using Machine Learning

Publisher: **IEEE**

[Cite This](#)

[PDF](#)

[Aniruddha Prabhu B P](#) ; [Chandradeep Bhatt](#) ; [Noor Mohd](#) ; [Tushar Sharma](#) ; [Malkeet Singh](#) **All Authors**

### Abstract

Neurodegenerative disease Parkinson's, which have both motor and non-motor type of symptoms, is one of the biggest problems, which gets consideration in the public health department. To assurance of patients and beneficial therapeutics process diagnosis should occur in the critical stages and should also be precise. The aim of this study is developing of the machine learning methods for the diagnosis and appraisal of Parkinson's disease. Dataset which contains patient data is used where each record has important attributes such as age, height, weight, gender, and so forth is obtained from the University of California Irvine (UCI) Machine Learning Repository. The research process commences with a detailed data-gathering procedure which is followed by an investigative exploratory data analysis to discover an inherent pattern shared by all Parkinsonian

traits. The data visualization tools can help us more deep information about Parkinson's disease symptoms. The task of making sure that the Minority Random Oversampling method is properly implemented in data preparation is quite significant for us as we work on the project because it is one of the important aspects. On the other hand, the flare Light Gradient Boosted Machine (LightGBM) model is the one we use for this particular purpose. When run on the test dataset, this state of the art algorithm hits the almost perfect result of 99.24% accuracy. As well as adding up new facts to the science of the Parkinson's disease research, this work shows how powerful computer algorithms and perfect datasets are in the spreading accurate diagnoses of Parkinson's disease.

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**Author keywords-** Data Analysis; EEG; Health; LightGBM; neurology; Parkinson



## ENHANCING THE TRAFFIC SIGN DETECTION TO IMPROVE CONVOLUTIONAL NEURAL NETWORK

**Sungheetha A.**; Kaveri V.V.; Sri S.V.; Srineveda R.S.; Rani S.K.; Sharma R.R.; Antony J.  
*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 - Proceedings 2024 2nd IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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### Enhancing the Traffic Sign Detection to Improve Convolutional Neural Network

Publisher: IEEE

[Cite This](#)

[PDF](#)

[Akey Sungheetha](#); [Vijeya kaveri V](#); [Sruthi Sri V](#); [Srineveda R S](#); [Sasikal Rani K](#); [Rajesh Sharma R](#) [All Authors](#)

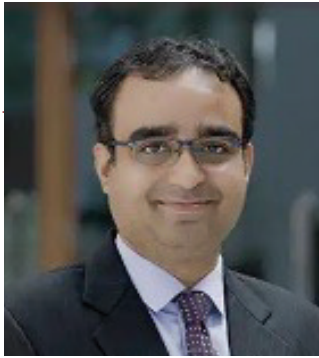
### Abstract

Traffic signs are essential for controlling traffic upon the road, enforcing driver discipline, and averting accidents, property damage, and deaths. An integral component of any ITS (Intelligent Transportation System) is road sign management with automated detection and recognition. The sign could have a large variety of colors and sizes. Additionally, changes may result from the signs' translation, rotation, and scaling. Transportation officials can optimize traffic control by modifying ramp metering, adjusting signal timings, or providing congestion-aware route guidance based on these traffic flow predictions. The skip connections are created by using dilated convolutions with various filter sizes to broaden the feature extractors' receptive fields. It was suggested to make an early effort to

create a hierarchical, spatially invariant model for image classification. A novel road extraction framework is proposed to address these issues by extracting complete and continuous road networks using a worldwide Context-aware and Batch-independent Network. The precision attained by the suggested model is superior to that of the conventional CNN. Furthermore, the suggested model demonstrates resilient performance in various environmental circumstances, rendering it appropriate for practical implementations and advancing intelligent transportation systems development, ultimately advocating for safer roadways.

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**Author keywords-** CNN Architecture; Convolution; Deep Learning; Precision; Road Safety; Robustness; Traffic Sign Detection



## BIBLIOMETRIC ANALYSIS OF BANKING FRAUDS AND SCAMS LITERATURE

Shukla A.; Kashni T.

*Journal of Financial Crime 2024*

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## Bibliometric analysis of banking frauds and scams literature

Anurag Shukla, Tarun Kashni

*Journal of Financial Crime*

### Abstract

**Purpose:** This paper aims to undertake an evaluation of the research development and works associated with banking frauds and scams. **Design/methodology/approach:** The authors have conducted bibliometric analysis of 288 studies on issues of banking frauds and scams, published up to August 4, 2024 using Scopus and the VOS viewer software. **Findings:** This study disseminates top influential authors, countries, journals, papers, funding institutions and affiliations relating to banking frauds and scams. Generally, although a great

deal of work has been accomplished in this area, there are prominent gaps in such findings. **Originality/value:** To the best of the authors' knowledge, this paper is the first comprehensive review of extant research relating to banking frauds and scams. It hence represents an original piece of work in applying bibliometric analysis to this topic area, offering valuable insights for practitioners and academics who seek to understand more about banking frauds and scams risks.

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**Author keywords-** Banking frauds; Banking scams; Bibliometric analysis; Cybersecurity; Financial crime; Risk management



## STUDY OF OPTIMIZATION OF VIRTUAL TOPOLOGY FOR WAVELENGTH-ROUTED NETWORKS IN THE PRESENCE OF DYNAMIC TRAFFIC DEMAND

Gajjar S.B.; **Mishra V.**

*Proceedings of SPIE - The International Society for Optical Engineering Volume 13276 2024 Article number 132760F 2nd International Conference on Current Trends in Physics and Photonics, ICCTPP 2024 Pune 9 July 2024 through 11 July 2024 Code 203351*

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## Study of optimization of virtual topology for wavelength-routed networks in the presence of dynamic traffic demand

*Shivranjani Bharatbhai Gajjar, Vivekanand Mishra*

### Abstract

This research examined the optimum requirements for revamping virtual topology for wavelength-routed networks under dynamic traffic demand for mesh physical topology networks. We analysed the optimization of congestion and entire output using the Yen’s K-shortest path algorithm, which is a new approach to investigate the optimum condition for transmission according to time and the number of users. We also consider energy usage during optimal

path selection. Previous studies have primarily focused on providing configuration strategies exclusively for selected light paths, with limited consideration for the overall physical topology configuration. Contrarily, the method proposed in this paper can be applied to optimize light path scenarios across various physical topologies.

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**Author keywords-** Shortest Path Algorithm; Virtual Topology Revamp (VTR); Wavelength Routed Network (WRN)



## NANOCOMPOSITES IN 3D BIOIMPLANTS AND FLUORESCENT BIOIMAGING

Jaswal N.; **Bahadur V.**; Raza A.; Prasad A.; Kumar P.

*Nanomanufacturing Techniques in Sustainable Healthcare Applications* Pages 296 – 316 1 January 2024

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## Nanomanufacturing Techniques in Sustainable Healthcare Applications

Arbind Prasad · Pramod Kumar



### Abstract

A burgeoning field, nanotechnology involves the production and application of nanoscale materials and devices. Nanocomposites have gained a lot of attention in the area of research with a number of current biomedical applications such as bioimplants, tissue engineering, biosensor, drug delivery, and wound healing, due to their significantly superior performance compared to conventional materials. Polymer composites are characterized by their higher surface-to-volume ratios, highly configurable product qualities, flexible production techniques, excellent durability against corrosion or erosion, and cheaper cost. Clinical applications such as surgical models, tools, tooling equipment as well as medical devices are increasingly being manufactured using additive manufacturing, also referred to as 3D printing. One of the key areas, researchers have been looking into are bioimplants. 3D printing could possibly be employed to manufacture a variety of bioimplants thanks to the

growth and development of additive manufacturing technologies. Customized bioimplants can be made to fit each person's needs using a variety of biomaterials and additive manufacturing methods. This could eventually lead to the design of new bioimplants with the help of 3D printing. In this book chapter we are going to focus on fluorescent nanocomposites showing magnetic behavior particularly due to wide array of applications in fluorescent imaging along with the various types of bioimplants that can be printed with additive manufacturing. The present study concludes with a discussion of the rising demand for 3D printed bioimplants and the important process control measures that have been enabled by technical developments to address the problems with 3D printing methods.

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## AGRO-WASTE OF SENNA ALATA (L.) ROXB. STEM: A SUSTAINABLE BIOFIBER MATERIAL FOR LIGHTWEIGHT COMPOSITES AND DIVERSE APPLICATIONS

Somasundaram R.; Isaac R.; Divakaran D.; **Suyambulingam I.**; Siengchin S.; Manavalan M.  
*Cellulose* 2024

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### Abstract

Natural lignocellulosic fibers possess distinct capacities and properties from various perspectives. To utilize natural fibers most effectively, particularly in high-quality applications, it is essential to have a solid understanding of their fundamental qualities. This study isolates ultrastrong fibers from the vascular tissues of the *Senna alata* (L.) Roxb. (candle bush) plant stem. The cellulose, lignin, and hemicellulose contents of the fibers were measured to be 72.14%, 12.28%, and 10.47%, respectively, which fell within a favorable range for creating ropes, sacs, yarns, and textile fabrics. To evaluate their potential qualities against commercially available fibers, *S. alata* was tested for tensile strength, tensile modulus, and elongation at break. The findings revealed tensile strength, breaking elongation, and E-modulus values of  $625.22 \pm 81.12$  MPa,  $3.86 \pm 1.7\%$ , and  $67.77 \pm 0.33$  GPa, which

were comparable to those of commercially available natural fibers, making them suitable for applications in door panels, furniture, and structural components. The fibers also exhibited lower mass losses (5% at 270 °C), making them appropriate for biocompatible materials with excellent heat stability, including insulation, packaging, circuit boards, dielectric substrates, and switches. Additionally, the antimicrobial properties of the fibers were evaluated and found suitable for use in the textile, pharmaceutical, and wound dressing sectors. The results illustrate that this unique fiber is an ecologically benign and sustainable raw material due to its superior value addition and the versatility it offers in manufacturing.

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**Author keywords-** Agro-waste; Lignocellulosic fiber; *Senna alata* (L.) Roxb. stem fiber



## UNLEASHING GREEN BEAUTY CRUSADE: ROLE OF INFLUENCER RELATIONAL CHARACTERISTICS, PRODUCT PERCEPTIONS, AND WARM GLOW

Sharma R.; Singh P.; **Sharma A.**

*Journal of Electronic Commerce Research* Volume 25, Issue 4, Pages 223 – 241 2024

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## Electronic Commerce Research

Publishing model  
**Hybrid**

### Abstract

Influencer marketing has become a strategic imperative for brand building. Nevertheless, marketers need a comprehensive understanding of the full extent of its scope and effectiveness. This study analyses the strategic role of influencer marketing in driving brand advocacy and intention to purchase green cosmetic products. This study is novel as it explores brand advocacy and purchase intentions from the perspective of influencers' characteristics and perceived safety and efficacy of green cosmetic products while considering the moderating effect of warm glow. Data were collected from 504 participants using a purposive sampling technique over a period of three months. SEM followed by moderation analysis was used to analyze the data. Findings reveal that influencer-

product congruence and influencer credibility influence perceived safety, whereas influencer credibility and parasocial interaction significantly influence the perceived efficacy of the product. Consequently, both perceived safety and efficacy of the product influence brand advocacy, which, in turn, influences the customers' purchase intentions towards green cosmetic products. Our results further corroborate that warm glow significantly moderates the effect of perceived safety on brand advocacy as well as the effect of brand advocacy on intention to purchase. However, warm glow does not moderate the relationship between product efficacy and brand advocacy.

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**Author keywords-** Influencer-product congruence; Para-social interaction; Perceived efficacy; Perceived safety; Warm glow



## SMART PLANT WATERING SYSTEM FOR ADVANCED IRRIGATION

Pujitha P.S.; Bhoomika H.R.; Saideep K.; Rahul Reddy T.; **Banshal S.K.; Karmakar M.; Shekhar R.**

Proceedings 2024 2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115

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## Smart Plant Watering System for Advanced Irrigation

Publisher: **IEEE**

[Cite This](#)

[PDF](#)

Pasupuleti Sai Pujitha ; Bhoomika H R ; Konduri Saideep ; T. Rahul Reddy ; Sumit Kumar Banshal ; Mousumi Karmakar

### Abstract

The Smart Plant Watering System is an Internet of Things (IoT) solution for automated plant irrigation. It combines an ESP8266 Wi-Fi module for real-time monitoring with soil moisture and DHT11 sensors for data collection. It makes use of tools such as Blynk and Thing Speak to facilitate data visualization and remote control. An online crop recommendation systems using ML approaches and written in Python

makes recommendations for the best crops to plant depending on the analysis of sensor data. With its ability to maximize irrigation, reduce water use, and improve crop management, this system represents a major breakthrough in precision agriculture for increased productivity and environmental sustainability.  
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**Author keywords-** Automation; Blynk platform; IoT Technologies; Precision agriculture; Recommendation Systems; Sensor Technology; Smart Irrigation; Thing Speak; User-friendly solution; Web application



## FRUIT AND VEGETABLE DETECTION WITH CALORIE ESTIMATION BUILT ON MOBILENETV2

**Sengottaiyan N.**; Hamsanandhini S.; **Rajesh Sharma R.**; **Sungheetha A.**; Monika M.; Adare K.

*2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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### Fruit and Vegetable Detection with Calorie Estimation Built on Mobilenetv2

Publisher: IEEE

[Cite This](#)

[PDF](#)

[Sengottaiyan N](#) ; [Hamsanandhini S](#) ; [Rajesh Sharma R](#) ; [Akey Sungheetha](#) ; [Monika M](#) ; [Ketema Adare](#) **All Authors**

### Abstract

Fruit and Vegetable Recognition with Calorie Estimation based on Mobilenetv2 is a pioneering research endeavor aimed at leveraging deep learning techniques to enhance dietary monitoring and health management. Building upon the success of neural network models in various domains, this study explores the application of Mobilenetv2 and EfficientNet architecture for accurately identifying fruits and vegetables from images and estimating their respective caloric content. The research dataset comprises meticulously curated images of diverse fruits and vegetables, ensuring comprehensive coverage across different categories. Through

rigorous experimentation and evaluation, the proposed model demonstrates remarkable accuracy in fruit and vegetable recognition, achieving an impressive accuracy rate of 97.6%. Moreover, the incorporation of calorie estimation adds a novel dimension to dietary analysis, enabling users to make informed decisions regarding their nutritional intake. The findings of this research not only contribute to the advancement of computer vision techniques but also hold significant implications for personalized nutrition tracking and health-conscious applications.

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**Author keywords-** CNN; Deep Learning; EfficientNet; Fruit and vegetable Recognition; MobileNetV2

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Impact Factor - 0.5

SDG



## CAPABILITY ENHANCEMENT OF PEOPLE WITH DISABILITY THROUGH LEADERSHIP-DRIVEN CARE

Verma P.; Stocchetti A.; Dev D.

*Journal of Human Values* 2024

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## Electronic Commerce Research

Publishing model

Hybrid

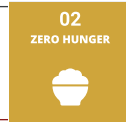
### Abstract

Influencer marketing has become a strategic imperative for brand building. Nevertheless, marketers need a comprehensive understanding of the full extent of its scope and effectiveness. This study analyses the strategic role of influencer marketing in driving brand advocacy and intention to purchase green cosmetic products. This study is novel as it explores brand advocacy and purchase intentions from the perspective of influencers' characteristics and perceived safety and efficacy of green cosmetic products while considering the moderating effect of warm glow. Data were collected from 504 participants using a purposive sampling technique over a period of three months. SEM followed by moderation analysis was used to analyze the data. Findings reveal that influencer-

product congruence and influencer credibility influence perceived safety, whereas influencer credibility and parasocial interaction significantly influence the perceived efficacy of the product. Consequently, both perceived safety and efficacy of the product influence brand advocacy, which, in turn, influences the customers' purchase intentions towards green cosmetic products. Our results further corroborate that warm glow significantly moderates the effect of perceived safety on brand advocacy as well as the effect of brand advocacy on intention to purchase. However, warm glow does not moderate the relationship between product efficacy and brand advocacy.

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**Author keywords-** Influencer-product congruence; Para-social interaction; Perceived efficacy; Perceived safety; Warm glow



## WATER MANAGEMENT FOR IOT-BASED SMART AGRICULTURE USING MACHINE LEARNING ALGORITHMS

**Geetha Rani E.;** Tukkoji C.; Anusha D.; Dhanalakshmi M.; Bharath B.

*Lecture Notes in Electrical Engineering Volume 1220 LNEE, Pages 351 – 363 2024 International Conference on Robotics, Control, Automation and Artificial Intelligence, RCAAI 2023 Manipal 12 October 2023 through 14 October 2023 Code 321689*

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### Abstract

Agriculture relies substantially on water. The IoT-based farm water management system explains how IoT technology can control irrigation intelligently. This system may be used to collect data by connecting several sensors such as soil moisture, temperature, and PIR motion sensors, among others. The collected data will be transferred to the user's mobile phone and sent to the users, ensuring crops receive the appropriate quantity of water and optimize irrigation schedules. By monitoring water levels, farmers may detect possible water loss locations and take action to prevent them. The primary goal of our article is to increase productivity, efficiency, and water use through live monitoring, water management, crop growth development, and the potential use of virtual water. Furthermore, breakthroughs in machine learning, such as crop prediction and recommendation, fertilizer detection, and leaf disease detection, will allow for more complex analysis of agricultural data, resulting in even great gains in water management and crop

yield. However, it is important to ensure that these technologies are accessible to all farmers, regardless of the location or resources. If giving detailed information on soil properties and crop genetics, machine learning algorithms can forecast agricultural yields and find the best crops for a given region. Now, farmers can maximize their crops by making data-driven decisions. This one system's capability to exactly predict crops yields and resources requirements be one of its key advantages. To promote more sustainable and productive farming, farmers should also control the quantity of water and other resources used by them. By assuring a sufficient supply and reducing the likelihood of crops failure, crops forecast, leaf disease diagnosis, and guidance systems can assist address concern related to global food securities in addition to enhancing productivity.

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**Author keywords-** Android; Arduino ID; DHT11 sensor; Lateral pipes; Node CU-ESP8266; PIR motion sensor; Soil moisture sensor water pump



## A CONVNET MODEL-BASED DEEP LEARNING APPROACH FOR PNEUMONIA RECOGNITION FROM CHEST X-RAY IMAGES

Venkateswarulu Naik B.; Unhelkar B.; Chakrabarti P.; **Ghantasala G.S.P.**;  
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*Proceedings 2024 2<sup>nd</sup> IEEE International Conference on Advances in Information Technology, ICAIT 2024 Chikkamagaluru, Karnataka 24 July 2024 through 27 July 2024 Code 203115*

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### A Convnet Model-Based Deep Learning Approach for Pneumonia Recognition from Chest X-ray Images

Publisher: **IEEE**

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### Abstract

Pneumonia diagnosis using chest X-ray (CXR) images shows a decisive part in early detection and handling of the disease. Within this research, proposes a convolutional neural network (ConvNet) model for automated pneumonia diagnosis based on CXR images. Our model leverages the deep learning capabilities of ConvNets to analyze features in CXR images and categorize them as pneumonia-positive or pneumonia-negative. We conducted experimentations on a comprehensive dataset of CXR images, achieving auspicious outcomes in terms of efficiency and accuracy. The proposed ConvNet model demonstrates prospective for an accurate and appropriate pneumonia diagnosis, contributing to improved healthcare outcomes and resource optimization in

medical settings. ConvNet model is implemented using tensorflow keras with preprocessing using Image data generator. The models are deployed like sequential, Conv2D with tuning parameters of Relu, dropout, max pool 2d and adam optimizer. For training the images with 150, 150 pixels, train sample as are 1000 and input shape is 3, epochs are 50, batch size is 20. Applications of the categorical cross-entropy loss function for multi-class division with Adam optimizer employed for parameter optimization. The Model trained for a stable amount of epochs through early based on validation loss toward prevent overfitting and learning rate, batch size, and dropout rate optimized through hyperparameter tuning.

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**Author keywords-** Chest X-ray Images; convolutional neural network; Deep learning; fully connected layer; Hyperparameter tuning; Pneumonia



## EFFICIENT RADON LEVELS DETECTION IN RESIDENTIAL AREAS USING CLOUD-ENABLED DECISION TREES FOR REAL-TIME ANALYSIS

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*I-SMAC 2024 - Proceedings* Pages 984 - 990 2024 8<sup>th</sup> International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud), I-SMAC 2024 Kirtipur 3 October 2024 through 5 October 2024 Code 203501

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### Efficient Radon Levels Detection in Residential Areas using Cloud-Enabled Decision Trees for Real-Time Analysis

Publisher: IEEE

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[PDF](#)

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### Abstract

This research introduces a new approach to radon detection in homes utilizing Decision Trees (DTs) enabled by the cloud in real-time. High radon levels, a natural radioactive gas, are dangerous to human health. Quick evaluation and mitigation efforts are hindered by the long processes required by traditional detection systems. Using DTs, a machine learning methodology, the proposed method sorts of radon levels according to variables, including building materials, ventilation systems, and geographic location. These trees may handle both numerical and categorical data and provide interpretability. Fast processing of

massive data sets and real-time analysis across varied residential areas are made possible by integrating cloud computing, increasing efficiency and scalability. Stakeholders may remotely access crucial information due to the solution's accessibility and flexibility. Results from controlled experiments demonstrate that this method can accurately identify radon levels in the air in real time, allowing for preventative actions to lessen potential health hazards. People living in areas prone to radon may benefit from this practice in terms of their health.

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**Author keywords-** Data analysis; Health risks; Indoor air quality; Machine learning; Mitigation efforts; Real-time analysis



## BIO-BASED NANOCOMPOSITES FOR IMAGING, TISSUE REPAIRING, AND DRUG DELIVERY APPLICATIONS

Justa P.; Jaswal N.; **Bahadur V.**; Singh M.K.; Gangwar D.K.; Kalhans M.B.; Kumar P.  
*Nanomanufacturing Techniques in Sustainable Healthcare Applications Pages 39 - 561 January 2024*

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## Nanomanufacturing Techniques in Sustainable Healthcare Applications

Arbind Prasad · Pramod Kumar



### Abstract

Bio-based materials are goods whose primary components are first derived from living organisms. The tendency of bio-based nanostructured materials to interface with human cells and tissues makes them perfect for the construction of biomedical applications. Furthermore, it is simple to adjust the chemical, physical, and mechanical characteristics of bio-based materials so that they correspond to the natural characteristics of a range of target tissues. The application of chitin nanoparticles and nanocomposites in tissue repair is increasing. Researchers are currently interested in chitosan and its nanoparticles because of its enhanced structural and functional properties, as well as their nontoxicity, biodegradability, and biocompatibility. Recent research studies demonstrate a variety of novel applications for bioimaging sensors, targeted drug administration, and bioimaging sensors. The chemical structure of

biodegradable synthetic polymers such as poly lactic acid, polycaprolactone, and poly ( -glutamic acid) determines their degradability, which therefore plays an important role in scaffold designing. A wide range of bulk biomaterials, including bioceramic tricalcium phosphate, hydroxyapatite, collagen, and chitosan can be used to create three-dimensional bone bioactive nanocomposite scaffolds. In light of the aforementioned considerations, this chapter provides an overview of a few instances of bio-based nanostructured materials having potential applications in tissue engineering, imaging, and drug delivery. These materials include polysaccharides (chitin, chitosan, and cellulose), porphyrins, carbon dots, metal-organic frameworks, and natural bioceramics

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## PREDICTOR OF HEART DISEASE USING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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## Predictor of Heart Disease using Artificial Intelligence and Machine Learning

Publisher: IEEE

[Cite This](#)

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### Abstract

The goal of the "Heart Disease Predictor" project is to create an AI-powered tool for cardiovascular disease (CVD) early detection and prevention. User requests are analysed through surveys and field trips, resulting in a comprehensive product specification. To deliver accurate CVD risk assessments, sophisticated machine learning algorithms are used and carefully evaluated against established risk assessment techniques.

Additionally, the project aims to increase public knowledge of cardiovascular health and provides recommendations for preventive actions. The expected effects include lower mortality, better health outcomes, more efficient use of healthcare resources, and continuous breakthroughs in research.

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**Author keywords-** cardiovascular; heart disease; illness; Machine Learning





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