IEI EPITOME

Volume 9 | Issue 9 | September 2024

A Century of Service to the Nation

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Editor

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Secretary & Director General

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Notification for IEI R&D Grant-in-Aid

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To promote appropriate technology, assist in building up design & research talents and, most importantly, to help in nurturing potential R&D venture amongst engineering students pursuing Diploma/UG/PG/PhD courses. The Institution of Engineers (India) had instituted the R&D Grant-in-Aid program way back in 2001.

Every year, the Institution invites applications for funding industry-oriented R&D projects and research initiatives aimed at improving the life-style of common people from engineering students pursuing full time Diploma/UG/PG/PhD engineering program in AICTE/UGC/NAAC approved Institutions / Colleges / Universities. The application form and guidelines are available in our website https://www.ieindia.org. The projects should be carried out under the guidance of faculty members who are Corporate Members of IEI. Membership criteria for student(s), guide(s) and institution(s) are as follows:

Project Category	Student/Applicant Membership	Guide(s) Membership	Institutional Membership
1. Diploma	Exempted [Membership of Student Chapter is desirable]	AMIE/MIE/FIE	Not Mandatory
2. UG (BE/BTech/ Equivalent)	'Student Member' (SMIE)	AMIE/MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank
3. PG (ME/MTech/ Equivalent)	AMIE/MIE/FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank
4. PhD	AMIE/MIE/FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank

The soft copy of the duly filled-up applications (in editable format), as per the proforma available on our website www.ieindia.org, should be sent through email to **research@ieindia.org** and one printed copy of the same should reach the following address:

The Deputy Director (Technical)
The Institution of Engineers (India)
8 Gokhale Road, Kolkata 700 020

Kindly go through the guidelines (visit link: **https://www.ieindia.org/webui/IEI-Activities.aspx#RnD-Initiative**) before filling up the application.

Members in the News

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Prof Dr Raghupatruni Bhima Rao, FIE
Former Chief Scientist
CSIR - Institute of Minerals and Materials Technology, Bhubaneswar, Odisha
✉ bhimarao@gmail.com

Prof Dr Raghupatruni Bhima Rao was felicitated on 29 August 2024 at Kochi by the Rare Earth Society of India with a citation at the International Conference organized by Southern African Institute of Mining and Metallurgy, Indian School of Mines, Dhanbad Association, Kolkata Chapter and Rare Earths Society of India.

Er Anand K Joshi, AMIE
Research Scholar,
Presidency University Bangalore, Karnataka
✉ anandjoshi.mech@gmail.com

Er Anand K Joshi was one of the inventor for an invention entitled "A Hybrid Battery Thermal Management System".

Patent Number :	542165
Application Number :	202341003561
Date of Filing :	18/01/2023
Date of Grant :	19/06/2024
Name of Patentee:	Presidency University
Name of other Inventors:	Dr. Devendra Singh Dandotiya & Pallabi Kakati
Application for the term:	20 years the 18th day of January 2023 in accordance with the provisions of the Patents Act 1970
Issuing Authority :	The Patent Office, Government of India, Chennai

Dr Kamal Kumar, MIE
Technical Officer-C
Defence Materials & Stores and Research & Development Establishment (DRDO), Kanpur, Uttar Pradesh
✉ lotusdrdo@gmail.com

Dr Kamal Kumar received the Degree of **Doctor of Philosophy** in the field of Textile Engineering of the faculty of Engineering & Technology for his thesis titled "Comfort Characteristics of Inner Layer Fabric of Extreme Cold Climate Clothing" from Dr A P J Abdul Kalam Technical University, Uttar Pradesh on 13 August 2024.

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Er Raju Kumar Tiwari, AMIE
Assistant Manager (Technical - Ship Repair)
Garden Reach Shipbuilders & Engineers India Ltd, Kolkata, West Bengal,
✉ rajjanuchera@gmail.com

Er Raju Kumar Tiwari received the **Certificate of Award** "On the Spot CMD Commendation" by GRSE on 16 June 2024 for rigorous effort in completing all activities of refit of SCG PS Zoroaster including opening, inspection, assembling inspection, pressure testing and harbor trail and thus accomplish the unique foreign project in a time bound manner meeting all quality parameters of equipment and enable the ship to complete post refit sea trial with nil observation.

The following esteemed corporate members were conferred with the prestigious **Professional Engineers** (PE) **Certificate** from IEI after successful completion of the assessment process and they have been authorised to use the style and title of **P Eng (I)** by virtue of expertise in their field:

Er Ramesh S T, FIE & PE 7007243 (Certified Professional Engineer, IEI)
Professor, Department of Civil Engineering, NIT, Tiruchirappalli
✉ stramesh@nitt.edu
Field : Environmental Engineering
Valid from: 06 August 2024
Valid up to: 31 August 2029

Dr Mohammed Habibulla, MIE & PE 7007251 (Certified Professional Engineer, IEI)
CEO, Environ India, Bengaluru
✉ habibulla.m@gmail.com; environindia001@gmail.com; habib@environindia.in
Field : Environmental Engineering
Valid from: 06 August 2024
Valid up to: 31 August 2029

Er Alex Thomas, FIE & PE 7007265 (Certified Professional Engineer, IEI)
Practicing Chartered Engineer
✉ alexthomasc77@gmail.com
Field : Civil Engineering
Valid from: 31 July 2024
Valid up to: 31 July 2029

Book Chapters

Dr Jitendra Mohan Giri, FIE
Head of the Department
Department of Mechanical Engineering, Lloyd Institute of Engineering and Technology, Greater Noida, Delhi
✉ jmgiri.me@gmail.com

Title of Chapter: **Biometric Object or Facial Detection, Identification and Recognition System using Python and Deep Learning Models**

Chapter 22, Sustainability in Digital Transformation Era: Driving Innovative & Growth, CRC Press, London, 1st Edition, 29 August 2024, eBook ISBN: 9781003534136

DOI: https://doi.org//10.1201/9781003534136-22

Co-authors : Ghanshyam Yadav, Ravi Kalra, Irfan Khan, Pradeep K. Chandra, Abhishek Kaushik & Ashish Parmar

Abstract: *This research paper is focused on creating an automated attendance system for colleges, institutions, organizations and universities with the help of image processing, deep learning, objects or facial detection, identification and recognition techniques. Many colleges, institutions and organizations have implemented object or facial detection, identification, recognition and attendance system but often it fails in different lighting conditions and very often give false positives. Many false positives also happen because objects or facial detection, identification and recognition techniques cannot differentiate between identical twins or in case of change in appearance.*

To tackle these issues, HOG (histogram of oriented gradients) algorithm as feature identifier (for the face detection phase), descriptor with SVM (support vector machine) algorithm and recognition phase by CNN (convolutional neural networks) deep learning model. HOG works much better with SVM and gives higher accuracy in different lighting conditions. This research paper still cannot differentiate identical twins, but this research paper has found a way to take their attendance using multiple cameras and at different angles and also in case of change in appearance, hairstyle [5][7].

This paper delves into the fascinating world of image identification, classification, and recognition. We'll be harnessing the power of advanced CNN with the ever-reliable TensorFlow Framework. Python takes center stage here, thanks to its impressive array of libraries such as Dlib, openCV, and TensorFlow. CNN proves to be the ultimate technique for training and testing data, consistently delivering outstanding results in facial detection, identification, and recognition. Accuracy, precision, recall, and time-space complexity are all carefully evaluated. With advanced CNN models, we're achieving remarkable results of over 98%, leaving others in the dust with their subpar sub-90% accuracy.

Title of Chapter: **Sustainable Thermoelectric Air-Cooling Systems: A Review**

Chapter 11, Scientific and Technological Advances in Materials for Energy Storage and Conversions, FLUTE 2023, Lecture Notes in Mechanical Engineering, Springer, Singapore, 13 August 2024, pp 709-721, Print ISBN: 978-981-97-2480-2, Online ISBN: 978-981-97-2481-9

DOI: https://doi.org/10.1007/978-981-97-2481-9_50

Co-authors : Pawan Kumar Singh Nain & Kaushalendra Kumar Dubey

Abstract: *Numerous recent reports indicate that buildings account for more than forty percent of total energy consumption. A major cause of the current energy crisis is the proliferation of HVAC systems that consume a disproportionate amount of power. In this paper, a review of the thermoelectric cooling systems fitted in the building to reduce its thermal load is presented. This begins by discussing the fundamentals of thermoelectric module (TEM). The factors that improve the system's performance are discussed. Then, the incorporation of thermoelectric cooling systems into the structure and its benefits in terms of energy consumption are discussed. Thermoelectric technology applications are expected to become increasingly more prevalent as new materials emerge on the market with improved levels of efficiency.*

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ErAnirban Datta, MIE
Founder & CEO
PIMECAS Engineering Solutions, Kolkata, West Bengal
✉ ani_dat@yahoo.co.in

Title of Chapter: **Linkage between Sustainable Development Goals 7 & 13 – Challenges & Way Forward**

Chapter 23, Green Practices and Business Augmentation: Hosting the Green Card, Allied Publishers Private Limited, 30 July 2024, pp 258-278, ISBN-10 : 9389934672, ISBN-13 : 978-9389934670

URL: https://books.google.co.in/books/about/Green_Practices_and_Business_Augmentatio.html?id=H5IXEQAAQBAJ&redir_esc=y

Co-author : Sushmita Choudhury

Abstract*: On 25 September 2015, 193 members of the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, which comprises a set of 17 sustainable development goals (SDG) with 169 specific targets. Out of the 17, Goal 7 is for ensuring access to clean and affordable energy, which is crucial for the development of all pillars of the society, viz. agriculture, business, communications, education, healthcare and transportation. Generation and consumption of energy is one of most dominant contributor to climate change, accounting for around 60% of total global greenhouse gas emissions, thus having a direct linkage with Goal 13, which focuses on climate action. Warranting universal access to affordable energy (electricity) by 2030 needs propagation of clean energy sources such as solar, wind, biomass, micro-hydro and geo-thermal, which, perpetually, requires expansion of infrastructure and upgradation of technology to supply clean energy in affordable and sustainable way, with least carbon foot-print, across the globe, for which, holistic energy transition policies for regional, national and local levels are essential. The underlying challenges are many, as the energy transition policies cannot be same for all corners of the globe, that is, it would be different for developed and developing countries, as well as for different geographical regions. This poses a critical challenge towards achievement of 'Net Zero', particularly for those countries, such as India, where per capita energy consumption is much lower (and yet to reach the point of saturation) than USA, European Union, Australia or China, and whose primary & predominant source of generation of electricity is though the route of combustion of fossil fuels, and that needs gradual phasing down, not sudden phasing out, as that would lead to acute energy shortage, because of gross disproportionate between energy consumption versus number of consumers. Therefore, the formulation of effective and sustainable energy transition policy must be country specific to strike a balance between SDG 7 and 13.*

ANNOUNCEMENT

Elevate your status as a Certified Professional Engineers (PE) and International Professional Engineers (IntPE)

Professional Engineers (PE) Certification by IEI

Eligibility Requirement

To attain the Professional Engineers (PE) certification through The Institution of Engineers (IEI), you must meet the following eligibility criteria:

1. Hold a BE/BTech or equivalent degree recognized by a Statutory Authority or the Government of India.
2. Have accumulated five years or more of professional experience.
3. Be a member of a recognized professional engineering institution or association.
4. Maintain a satisfactory level of Continued Professional Development (CPD).

Please visit the following link :

https://www.ieindia.org/webui/IEI_PE_Certification.aspx

International Professional Engineers (IntPE) Certification by IEI

Eligibility Requirement

To be eligible for IntPE Certification by IEI, candidates must meet the following criteria:

1. Hold a BE/BTech or equivalent degree recognized by the Statutory Authority or the Government of India.
2. Possess seven years or more of professional experience.
3. Have a minimum of two years of professional experience in a significant engineering activity.
4. Be a member of a recognized professional engineering institution or association.
5. Maintain a satisfactory level of Continued Professional Development (CPD).

Please visit the following link:

https://www.ieindia.org/webui/IEI_IntPE_Certification.aspx

The eligible candidate can submit application in the prescribed format to: The Deputy Director (Technical), The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700020; For any query and assistance, please send email to: pe@ieindia.org

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Er Chiranjib Sarkar, MIE
Principle Engineer
GEOCONSULT India Pvt Ltd, Kolkata, West Bengal
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Title of Chapter: **Behavior of Bridge Abutment Foundation in Mixed Ground Condition**

Proceedings of the Indian Geotechnical Conference 2022,Volume 2, Lecture Notes in Civil Engineering 477, 06 May 2024, pp 219–227, ISBN: 978-981-97-1740-8, ISBN: 978-981-97-1741-5 (eBook), ISSN 2366-2557, ISSN 2366-2565 (electronic)

DOI: https://doi.org/10.1007/978-981-97-1741-5_19

Co-authors : Sibapriya Mukherjee & Ankit Som

Abstract: *Bridges are prime components of transportation network. Subsoil conditions, water table depth, and seismicity have crucial impact on the foundation part of a bridge abutment which may mainly consist of pile or open foundation. Hence, it is necessary to study the effect of soil–structure interaction of bridge foundation under seismic force. To study the nonlinear behavior of bridge abutment and its foundation, different sets of soil models with various seismic forces have been developed by using FEM-based software for a typical bridge abutment foundation. To gain an insight into the seismic response of abutment foundation, its geometrical profile has been further modeled for both pile and open foundations. Different surrounding subsoil conditions (soft soil, weathered rock, etc.) provide variation in safe bearing capacity, ground settlement, stability factor, etc. The results of the present study show that the factor of safety of the bridge abutment gradually increases by 4–12% and ground settlement decreases by 6–16% when ground condition changes from medium to stiff clay followed by weathered rock. Ground settlement increases by 30–135% when seismic zone changes from Zone-III to Zone-IV with higher PGA, even for same soil condition.*

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Er Gayatri K Chaturvedi, AMIE
Research Scholar
Veermata Jijabai Technological Institute (VJTI) , Mumbai, Maharashtra
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Title of Chapter: **An Analysis of Security and Privacy in Cloud and IoT**

Chapter 4, Cloud of Things: Foundations, Applications, and Challenges, A Chapman and Hall Book, CRC Press, New York, 1st Edition, 7 August 2024, pp 67-89, ISBN: 978-1-032-48441-9 (hbk), ISBN: 978-1-032-48824-0 (pbk), ISBN: 978-1-003-39095-4 (ebk)

DOI : https://doi.org/10.1201/9781003390954

Co-authors: Mahesh Shirole & Ulka Shirole

Abstract: *Within the last decade, cloud computing and the Internet of Things (IoT) have become inseparable parts of our everyday lives. In recent years, several use cases have been developed among academia, government agencies, industry, and industry groups across various sectors: transportation, building, manufacturing, the distribution grid, farming, and healthcare. The cloud and IoT computing paradigms utilize a geographically distributed network of smart devices to collect large amounts of data and automate the entire ecosystem of connected devices.*

Paper published in the Journals / Proceedings

Dr Raghu Babu Uppara, MIE
Associate Professor
Civil Engineering Department, Srinivasa Ramanujan Institute of Technology, Anantapuramu, Andhra Pradesh
✉ ammaraghubabu@gmail.com

Title of Paper: **Spatiotemporal Variation of Water Quality in the Context of Suspended Particulate Matter in Laguna Mar Chiquita Lake, Argentina using ACOLITE**

Desalination and Water Treatment, Elsevier, 320, October 2024,100684, Online ISSN: 1944-3986

DOI: https://doi.org/10.1016/j.dwt.2024.100684

Co-authors : Vivek Sivakumar, Vaidhegi Kannan, B Sasivarman, N P Srinivasan & Priya Velusamy

Abstract: *This study investigates seasonal variations in water quality at Laguna Mar Chiquita Lake, Argentina, by employing remote sensing techniques to analyze Suspended Particulate Matter (SPM) which offers valuable insights into the lake's environmental health. Landsat 8–9 OLI/TIRS data from 2014–2023 was utilized for spectral analysis of water quality, processed using ACOLITE software for accurate quantitative data. Results show SPM concentrations ranging from 0.823 to 44.172 mg/l, with significant seasonal variations. Higher SPM concentrations post-monsoon indicate increased anthropogenic influence, particularly in the northern area. Pollution from tourism and industrial activities is lower pre-monsoon but spikes post-monsoon and during monsoon, suggesting unfavorable conditions. Effective management and continuous monitoring are crucial for maintaining lake quality and ecosystem health.*

Keywords: *Remote Sensing; Suspended Particulate Matter; Water Quality; Spatiotemporal; Environmental Monitoring*

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Prof Gaurab Kumar Ghosh, AMIE
Assistant Professor
Department of Mechanical Engineering, Indira Gandhi Institute of Technology (Govt.of Odisha), Sarang, Dhenkanal
✉ gaurabghosh@igitsarang.ac.in, gaurab0112@gmail.com

Title of Paper: **The Conjoint Effect of Lab-Grown Nano-Graphene Dispersant and Omega-9 Fatty Acid Surfactant on Performance of CI Engine**

Journal of Dispersion Science and Technology, Taylor and Francis, 17 July 2024, Print ISSN: 0193-2691 Online ISSN: 1532-2351

DOI: https://doi.org/10.1080/01932691.2024.2376692

Co-authors : Sikta Panda,Ankit Kotia,Niranjan Kumar & Subrata Kumar Ghosh

Abstract: *This article aims to assess the performance characteristics of lab-grown graphene nanoparticles via electrolytic exfoliation as nano additives in engine oil. Physical characterization confirmed the morphology and purity of the prepared graphene nanoparticles. Nanolubricants were prepared at 0.1%, 0.2%, and 0.3% volume fraction of the nanoparticles with the addition of oleic acid as surfactant. Measurements of density and viscosity for the nanolubricants were recorded at varying concentrations and temperatures. The performance parameters of a 4-stroke single-cylinder compression ignition (CI) engine were computed using the formulated nanolubricants. The emission of toxic gases into the environment post-engine performance evaluation was also analyzed for different formulations of nanolubricant samples. Results showed that the relative viscosity variation with concentration for the experimental data was in well agreement with other available predictive models. The nanolubricant with 0.1% concentration yielded a reduction of 13.96 ± 0.39% in total fuel consumption (TFC), a reduction of 5.55 ± 0.17% in brake-specific fuel consumption (BSFC) and an augmentation of 3.96 ± 0.13% in brake thermal efficiency (BTE) in comparison to plain engine oil and other prepared formulations. Also, a marginal reduction in emission of exhaust toxic gases i.e., (2.13 ± 0.1%) ppm in NOx and a significant maximum reduction of 7.46 ± 0.2% in smoke opacity has been obtained with 0.1% nanolubricant sample as compared to other test samples. The results from the present study may be useful for developing sustainable nanolubricants for environmental viability and energy savings.*

Keywords: *Graphene Nanoparticles; Density; Viscosity; CI Engine; Emission Analysis*

ANNOUNCEMENT

39th Indian Engineering Congress
20-22 December, 2024
Theme:
Irresistible India - a Global Engineering Powerhouse
Venue: Novotel Kolkata Hotel & Residences
Organised by
The Institution of Engineers (India), West Bengal State Centre
For details please visit: www.39iec.org

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Er Gayatri K Chaturvedi, AMIE
Research Scholar
Veermata Jijabai Technological Institute (VJTI) , Mumbai, Maharashtra
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Title of Paper: **ABAC-PA^2: Attribute-Based Access Control Model with Privacy Aware Anonymous Access**

Procedia Computer Science, Elsevier, 237, 31 May 2024, pp 147-154, Online ISSN: 1877-0509
DOI: https://doi.org/10.1016/j.procs.2024.05.090

Co-author : Mahesh Shirole

Abstract: *Cloud computing offers an excellent platform for sharing information and services among departments, partners, customers, and other parties. To ensure the effectiveness of a cloud deployment, it is imperative that resources and data are available in a secure and efficient manner. The protection of personally identifiable information (PII) is a critical requirement for many organizations in order to prevent unauthorized disclosure of that information. In spite of the fact that private information may not be stored within an authorized organization, it can still be protected. It has been shown in recent literature that anonymity can be used to preserve PII privacy. The current methodology for anonymous access is based on certificates rather than subject identity or attribute-based encryption. Identity-based access control is inflexible and violates privacy laws. Access to a certificate can be linked using a certificate that poses a risk of re-identification. The types of objects that can be encrypted by attributes are limited.*

To preserve the privacy of attributes set of subject and object, we extend the attribute-based access control (ABAC) model by expressing privacy requirements with anonymous access. It inherits several characteristics from ABAC, including fine-grained authorizations, unlimited object types, policy flexibility, and object privacy. ABAC-PA^2 uses homomorphic attribute-based signature (HABS), a secure anonymous access framework that enhances ABAC's identity-less and incorporates privacy-preserving principles by assigning privacy levels to resources.

Keywords: *Attribute-Based Access Control; Cloud Computing; HABS; Privacy Protection; Anonymous Access*

ANNOUNCEMENT

Know-Your-Member (KYM)

The Institution of Engineers (India) is **updating the database of all its Corporate Members** along with their achievements for which a Know-Your-Member (KYM) form has been introduced.

Every Corporate Member is requested to kindly fill up the form and forward it along with the self-attested copy of photo ID proof to the address given below:-

The Deputy Director (Membership)
The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700020
Email: datamemb@ieindia.org

The form can be accessed & downloaded at :
https://www.ieindia.org/WebUI/ajax/Downloads/WebUI_PDF/HIGHLIGHTS_DOCUMENT-3332.pdf

Journal of The Institution of Engineers (India): Series B

|Computer, Electrical, Electronics & Telecommunication Engineering|

(Electronic ISSN: 2250-2114; Print ISSN: 2250-2106)

[CiteScore: 3.1; h5 Index: 24]

[SCOPUS Indexed & UGC-CARE (India) listed]

For download, use Membership ID through: www.ieindia.org

Volume 105, Issue 4, August 2024

Title: **Design and Development of IoT-Based SmartTech-Agri Devices for Smart Agriculture Crop Field**

Authors: **Tapan Maity, Samaresh Paul, Jagannath Samanta & Prabir Saha**

Department of Electronics and Communication Engineering, Haldia Institute of Technology, Haldia, Purba Medinipur, West Bengal, India

IBM India Private Limited, Kolkata, India

Department of Electronics and Communication Engineering, National Institute of Technology, Meghalaya, Shillong, India

DOI: https://doi.org/10.1007/s40031-024-01002-5

Publication date: 21 February 2024

Pages: 753–762

Title: **Real-time Implementation of Controlled Energization of Coupled Power Transformer using Multi-Stepped PIR: Part-2**

Authors: **K A Bhatt, Bhavesh R Bhalja, U L Makwana, F A Macwan, A K Giri & B Chittibabu**

Department of Electrical Engineering, L. D. College of Engineering, Ahmedabad, Gujarat, India

Department of Electrical Engineering, Indian Institute of Technology Roorkee, Roorkee, Uttarakhand, India

Department of Electrical Engineering, Government Engineering College, Modasa, Gujarat, India

Department of Electrical Engineering, Government Engineering College, Bharuch, Gujarat, India

Department of Electrical Engineering, Indian Institute of Information Technology, Design, and Manufacturing, Kancheepuram, Tamil Nadu, India

DOI: https://doi.org/10.1007/s40031-024-01008-z

Publication date: 21 February 2024

Page: 763–771

Title: **Gemstone Classification Using Deep Convolutional Neural Network**

Authors: **Bidesh Chakraborty, Rajesh Mukherjee & Sayan Das**

Department of Computer science and Engineering (Data Science), Haldia Institute of Technology, Haldia, Purba Midnapur, West Bengal, 721657, India

Department of Computer science and Engineering, Haldia Institute of Technology, Haldia, Purba Midnapur, West Bengal, 721657, India

DOI: https://doi.org/10.1007/s40031-024-01003-4

Publication date: 24 February 2024

Page: 773–785

Title: **Development and Classification of Image Dataset for Text-to-Image Generation**

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Authors: **Munish Kumar, Meenakshi Mittal & Satwinder Singh**
Department of Computer Science & Technology, Central University of Punjab, Bathinda, India
DOI: https://doi.org/10.1007/s40031-024-01013-2
Publication date: 29 February 2024
Pages: 787–796

Title: **Energy Surveillance Tactics and Coherent Application Using Automation and IOT**
Authors: **Aditya Mistry, Vidhi Bablani, Nisarg Soni & Sandip Mehta**
School of Techonlogy, Nirma University, Ahmedabad, Gujarat, India
DOI: https://doi.org/10.1007/s40031-024-01014-1
Publication date: 29 February 2024
Pages: 797–807

Title: **Signal Frequency Estimation via Kalman Filter and Least Squares Approach for Non-uniform Signals**
Authors: **Thirumalesh Nizampatnam & Neeraj Kumar Misra**
School of Electronics Engineering, VIT-AP University, Amaravathi, Andhra Pradesh, 522237, India
DOI: https://doi.org/10.1007/s40031-024-01020-3
Publication date: 01 March 2024
Pages: 809–823

Title: **IGDM: Image-Based Grading System of Downy Mildew in Cucumber Using Digital Image Processing and Unsupervised Learning**
Authors: **Kaushik Mukherjee, Shubhajyoti Das, Subhranil Mustafi, Sanket Dan & Satyendra Nath Mandal**
Department of Information Technology, Kalyani Government Engineering College, Kalyani 741235, India
DOI: https://doi.org/10.1007/s40031-024-01005-2
Publication date: 02 March 2024
Pages: 825–839

Title: **Single-Sensor based CSPO Algorithm for Maximum Power Point Tracking under Dynamic Shading Conditions**
Authors: **Prateek Bashista, Anurag Mishra, Bhavnesh Kumar & Arjun Tyagi**
Department of Instrumentation and Control Engineering, Netaji Subhas University of Technology, New Delhi, India
Department of Electrical Engineering, Faculty of Technology, University of Delhi, Delhi, India
DOI: https://doi.org/10.1007/s40031-024-01012-3
Publication date: 04 March 2024
Pages: 841–854

Title: **Fault Location and Section Identification Algorithm on Multi-Terminal Transmission Lines using DWT**
Authors: **S K Nazeer, C Mahalakshmi & P Kanta Rao**
Department of Electrical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalai Nagar, Chidambaram, 608002, India
Department of Electrical & Electronics Engineering, S R K R Engineering College, Bhimavaram, 534204, India
DOI: https://doi.org/10.1007/s40031-024-01016-z

Publication date: 05 March 2024
Pages: 855–870

Title: **Blood Vessel Segmentation using FCM–STSA Method for Retinal Fundus Images**
Authors: **Rajwinder Kaur & Richa Brar**
Department of Mathematics, Sri Guru Granth Sahib World University, Fatehgarh Sahib, Punjab, India
DOI: https://doi.org/10.1007/s40031-024-01019-w
Publication date: 05 March 2024
Pages: 871–884

Title: **High-Efficiency DC–DC Buck Converter with Improved PWM Generator in CMOS Technology**
Author: **He Jin**
College of Automotive and Electromechanical Engineering, Lu'An Vocational Technical College, Lu'An, 237011, AnHui, China
DOI: https://doi.org/10.1007/s40031-024-01025-y
Publication date: 05 March 2024
Pages: 885–901

Title: **Energy-Efficient Design for Logic Circuits Using a Leakage Control Configuration in FinFET Technology**
Authors: **Shams Ul Haq & Vijay Kumar Sharma**
School of Electronics and Communication Engineering, Shri Mata Vaishno Devi University, Katra, India
DOI: https://doi.org/10.1007/s40031-024-01026-x
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DOI: https://doi.org/10.1007/s40033-023-00499-2
Publication date: 06 June 2023
Pages: 1001–1006

Title: **Hydrothermal Synthesis, Characterization of WO_3 Nanoparticles for Ethanol Gas Sensor Application**

Authors: **Srinivasa Rao Dokku, B W Shivaraj, A Harshith Raj, G R Rajkumar, D B Keshava Murthy, B N Prashanth, A C Prapul Chandra & Mahantesh M Math**
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DOI: https://doi.org/10.1007/s40033-023-00543-1

Publication date: 15 September 2023
Pages: 1007–1013

Title: **Influence of Laser Power on Microstructure and Wear Behavior of Additively Manufactured AlSi10Mg Alloy**

Authors: **Sunil Patidar, Srinibash Mishra & Mohammad Ashiq**
Department of Metallurgical and Materials Engineering, National Institute of Technology Srinagar, Srinagar, Jammu & Kashmir, 190006, India
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DOI: https://doi.org/10.1007/s40033-023-00548-w
Publication date: 22 September 2023
Pages: 1015–1026

Title: **Investigation of Thermomechanical Properties of Al_2O_3–TiB_2/Silicon Carbide Ceramic Nanocomposites for Thermal Barrier Coatings**

Authors: **S Subha, Nalli Shalem Raju, Kodi Vaishnav Kumar Yadav & Gutti Nithin Kumar**
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DOI: https://doi.org/10.1007/s40033-023-00523-5
Publication date: 25 July 2023
Pages: 1027–1039

Title: **Investigation on Mechanical Characteristics of Fluxed Composite Pre-reduced Pellets Made with High Ash Coal**

Authors: **Avash Kumar Saha, Ramesh Kumar, Kashi Nath Malik & Arup Kumar Mandal**
Department of Metallurgical and Materials Engineering, National Institute of Technology Durgapur, Durgapur, West Bengal, India

DOI: https://doi.org/10.1007/s40033-023-00528-0
Publication date: 02 August 2023
Pages: 1041–1046

Title: **Investigations into Impact Behavior of 3D Printed Nylon Short Carbon Fiber Composite**

Authors: **Pradeep Kumar Mishra, Siddhesh Salve & T Jagadesh**
Department of Production Engineering, National Institute of Technology, Tiruchirappalli, India

DOI: https://doi.org/10.1007/s40033-023-00551-1
Publication date: 05 October 2023
Pages: 1047–1058

Title: **Mechanical and Thermal Characterization of Jute Fibre Reinforced Epoxy Composites and Lime Sludge as a Filler**

Authors: **Ashraf Ali, Satadru Kashyap & Sushen Kirtania**
Department of Mechanical Engineering, Tezpur University, Napaam, Sonitpur, Assam, 784028, India

DOI: https://doi.org/10.1007/s40033-023-00516-4
Publication date: 05 August 2023
Pages: 1059–1067

Title: **Mechanical Properties of Sugarcane Bagasse Powder/Flyash Reinforced Polymer Composites**

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Authors: **Gangadhar Tiptur Gangaraju, Prapul Chandra Appaji Channasandra & K Sunilkumar**
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Department of Mechanical, RV College of Engineering, Bengaluru, Karnataka, India
DOI: https://doi.org/10.1007/s40033-023-00539-x
Publication date: 05 September 2023
Pages: 1069–1080

Title: **Microstructure and Mechanical Properties of Friction Stir Welded Al-Mg-Si Alloys Under Variable Parameter Conditions**

Authors: **Manu Srivastava, Nasir Khan, Shazman Nabi & Sandeep Rathee**
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DOI: https://doi.org/10.1007/s40033-023-00511-9
Publication date: 08 August 2023
Pages: 1081–1092

Title: **Optimization of Friction Stir Welding Parameters to Enhance Weld Nugget Hardness in AA6061-B_4C Composite Material**

Authors: **C Manjunatha, T N Sreenivasa, P Sanjay & C Durga Prasad**
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DOI: https://doi.org/10.1007/s40033-023-00562-y
Publication date: 10 October 2023
Pages: 1093–1100

Title: **Preparation and Characterization of Hybrid Composite Polyethylene Fibers: Novel Catalyst in Treatment of Medical Waste**

Authors: **B Vinod, S Suresh, S Sunil Kumar Reddy & D Sudhakara**
Department of Mechanical Engineering, Siddharth Institute of Engineering & Technology, Puttur, India
DOI: https://doi.org/10.1007/s40033-023-00522-6
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Authors: **Adil Wazeer, Oleksij Fomin & Apurba Das**
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Publication date: 28 June 2023
Pages: 1115–1125

Title: **Sensitivity Analysis of Excavation Support Systems Using Numerical Modelling**

Authors: **Koruprolu Mani Ganesh, Arunava Ray, Deepak Dagdi, Rajesh Rai & Ashok Jaiswal**
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DOI: https://doi.org/10.1007/s40033-023-00589-1
Publication date: 30 November 2023
Pages: 1127–1136

Title: **Static Structural Analysis of Turbo-Impeller for Substitute Materials**

Authors: **Sahil Negi, Kulwant Singh & Anuj Kumar Sehgal**
Department of Mechanical Engineering, Chandigarh University, Mohali, Punjab, India

DOI: https://doi.org/10.1007/s40033-023-00521-7
Publication date: 22 July 2023
Pages: 1137–1143

Title: **Structural and Spectroscopic Investigation on Plasticized PEO/PMMA Blended Nanocomposite Solid Polymer Electrolytes**

Authors: **S Amudha, A N Nousheen Nisha & Y Saimeenatchi**
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DOI: https://doi.org/10.1007/s40033-023-00532-4
Publication date: 15 August 2023
Pages: 1145–1151

Title: **Structural, Magnetic and Dielectric Investigation of Cr Doped Co-Zn Nanoferrites**

Authors: **Harpreet Kaur, Dharamvir Singh Ahlawat & Anand Kumar Tyagi**
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DOI: https://doi.org/10.1007/s40033-023-00531-5
Publication date: 17 August 2023
Pages: 1153–1165

Title: **Study on Mechanical Properties and Reduction Behavior of Agglomerated Fines Raw Materials for Pig Iron Production**

Authors: **Chanchal Biswas, Arghya Majumder, Rajib Dey & Mahua Ghosh Chaudhuri**
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DOI: https://doi.org/10.1007/s40033-023-00534-2
Publication date: 23 August 2023
Pages: 1167–1176

Title: **Synthesis and Characterization of Al356–ZrO_2–SiC Hybrid Composites**

Authors: **S L Vijay Kumar, K V Sreenivas Rao, G M Sandeep & S Udayashankar**
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DOI: https://doi.org/10.1007/s40033-023-00544-0
Publication date: 19 September 2023
Pages: 1177–1186

Title: **Synthesis and Wire EDM Characteristics of Cu-Al-Mn Ternary Shape Memory Alloys using Taguchi Method**

Authors: **N Praveen, U S Mallik, A G Shivasiddaramaih, R Suresh, C Durga Prasad & L Shivaramu**
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DOI: https://doi.org/10.1007/s40033-023-00501-x
Publication date: 05 June 2023
Pages: 1187–1200

Title: **Through Thickness Stress Analysis of GNP/Epoxy Nanocomposites with Low Graphene Content**

Authors: **Chinmoi Agni Borah, Sushen Kirtania, Sanjib Banerjee & Satadru Kashyap**
Department of Mechanical Engineering, Tezpur University, PO: Napaam, Sonitpur, Assam, 784028, India
DOI: https://doi.org/10.1007/s40033-023-00552-0
Publication date: 04 October 2023
Pages: 1201–1208

Title: **Time-Dependent Stability Assessment of Coal Mine's Gallery using New Geotechnical Classification**

Authors: **Sonu & Ashok Jaiswal**
Department of Mining Engineering, IIT (BHU), Varanasi, India
DOI: https://doi.org/10.1007/s40033-024-00665-0
Publication date: 05 March 2024
Pages: 1209–1221

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Authors: **Anil Kumar Tripathy, S S Behera, B Marandi, P Sahu, A R Sheik, V Aishvarya, Indra Narayan Bhattacharya & Kali Sanjay**
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Bhubaneswar, 751013, India
DOI: https://doi.org/10.1007/s40033-023-00533-3
Publication date: 18 August 2023
Pages: 1223–1229

Title: **Tribological Behavior, Mechanical Properties and Electrochemical Corrosion Response of Ultrasonically Assisted TiO_2 Reinforced Electroless Ni-B Coatings**

Authors: **Deviprasanna Mohanty, Tapan Kumar Barman & Prasanta Sahoo**
Department of Mechanical Engineering, Jadavpur University, Kolkata, India

DOI: https://doi.org/10.1007/s40033-023-00508-4
Publication date: 29 June 2023
Pages: 1231–1242

Title: **Utilization of Solid Plant Wastes as Composite Briquettes for use in Blast Furnace**

Authors: **Rinku Dey, Souvik Banerjee, Chanchal Biswas & Arghya Majumder**
Department of Metallurgical Engineering, Kazi Nazrul University, Asansol, West Bengal, 713301, India

DOI: https://doi.org/10.1007/s40033-023-00547-x
Publication date: 26 September 2023
Pages: 1243–1250

Title: **Utilization of Some of Major Steel Plant Wastes to Produce Metallic Iron**

Authors: **Arnab Swarnakar, Chanchal Biswas, Arghya Majumder & Rajib Dey**
Metallurgical & Material Engineering Department, Jadavpur University, Kolkata, West Bengal, India
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Publication date: 15 July 2023
Pages: 1251–1259

Title: **Wear Performance of Multi-Walled Carbon Nanotubes Grafted Hybrid Fiber (Carbon–Aramid) Friction Materials**

Author: **Naresh Kumar Konada**
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National Institute of Technology Karnataka, Surathakal, Mangalore, India

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Publication date: 05 September 2023
Pages: 1273–1289

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Authors: **Gangadhar M Kanaginahal, Vijay Tambrallimath, Madhav Murthy, Rayappa S Mahale, Adarsh**

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Publication date: 05 July 2023
Pages: 1291–1303

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Authors: **Sumit K Sharma, Abhinav Kumar Singh, Rohit Kumar Mishra, Amarish Kumar Shukla & Chaitanya Sharma**
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DOI: https://doi.org/10.1007/s40033-023-00497-4
Publication date: 07 June 2023
Pages: 1305–1318

Title: **Stabilization of Mine Waste Dumps through Bio-Engineering**

Authors: **Anupam Chaturvedi, G S P Singh & Sanjay K Sharma**
Department of Mining Engineering of Indian Institute of Technology (Banaras Hindu University), Varanasi, 221005, India
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2.	Attaining & encountering the challenges in water supply & sewerage system	08 - 11 Oct 24
3.	Advances in Supply Chain and Logistics Management	08 - 11 Oct 24
4.	Application of IoT, Machine Learning, and Artificial Intelligence	09 - 11 Oct 24
5.	Power cable selection, testing, Laying and Commissioning	09 - 11 Oct 24
6.	Interlab Comparison & Proficiency Testing	09 - 11 Oct 24
7.	Information Security Management System (ISMS - ISO 27001) Lead Implementer	14 - 17 Oct 24
8.	Effective Utilization of MS office Applications	14 - 18 Oct 24
9.	Strategies for More Crop for Drop of Water	14 - 17 Oct 24
10.	Advances in the Industrial Heat-treatment of metals and alloys	15 - 18 Oct 24
11.	Climate Change Impact on Public Health	16 - 18 Oct 24
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13.	Quality Control and Engineering Inspection	16 - 18 Oct 24
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17.	Smart City Solution and Environmental Aspects	22 - 24 Oct 24
18.	Executive Development Programme on Leadership and Change Management.	22 - 24 Oct 24
19.	Smart Meter Integration - PMU Asset Management in T&D Utilities	22 - 25 Oct 24
20.	TQM Practices and Tools for Organizational Excellence	23 - 25 Oct 24
21.	Failure of Gates & Dams and Preventions	23 - 25 Oct 24
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