Criterion 3 – Research, Innovations and Extension	
3.4	Research Publications and Awards

3.4.3 Details of research papers per teacher in CARE Journals notified on UGC website during the year

**E-Copies of
Research papers**

List of research papers per teacher in CARE Journals notified on UGC website during AY(2022-23)

S.No.	Name of the Author(s)	Title of the Paper	Name of the Journal
1.	Satish N.; Logeswari V.; Pundir S.; Kumar A.; Nikhil M.Y.; Saldahna N.D.	Automated AI - Equity Market Lead-Lag Prediction Based on Multivariate Time Series	Proceedings of the 2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023
2.	Rasi D.; Antobennet M.; Renjith P.N.; Arun M.R.; Vanathi D.	YOLO Based Deep Learning Model for Segmenting the Color Images	International Journal of Electrical and Electronics Research
3.	Sowparnika B.; Yamini K.; Walid M.A.A.; Prasad J.; Aparna N.; Chauhan A.	Innovative Method for Detecting Liver Cancer using Auto Encoder and Single Feed Forward Neural Network	Proceedings of the 2nd International Conference on Applied Artificial Intelligence and Computing, ICAAIC 2023
4.	SenthilKannan, K., Balamurugapandian, N., Jayanalina, T., Vincy, G.A., Prasath, M.G., Vimalan, M., Sasikumar, P.	Characterizations of Zinc Acetate micro-crystals (ZAµ) and Co-60 irradiated micro-crystals (GZAµ) for photonic and electro-optic relevances	Journal of Materials Science: Materials in Electronics
5.	Sruthy R.; Kavitha S.; Darwin N.; Titus A.; Kishore V.V.; Dharshini B.S.	Smart RFID: Experimental Evaluation of Secured Students Attendance Handling System Using RFID	Proceedings of the 2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023
6.	Pratheeba, C., Muthuvinayagam, M., Siva Ramkumar, M., Rohith Bhat, C., Maniraj, P., Kumar, N.S	A Review of an off Grid Solar DC System for Rural Houses	Proceedings of the 7th International Conference on Intelligent Computing and Control Systems, ICICCS 2023
7.	Shanthi, P., Arulkarthick, E.K., Supreeth, B.R., Vyas, N.K., Singh, D.P., Selvameena, R.	Weather Impact Nano Patch Hybrid Satellite Communication with AI Monitored Network Information Protection System	Proceedings of the 2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023
8.	Gowrishankar V.; Prabhakaran G.; Tamilselvan K.S.; Judgi T.; Parimala Devi M.; Murugesan A.	IoT based Smart ID Card for Working Woman Safety	Proceedings of the 7th International Conference on Intelligent Computing and Control Systems, ICICCS 2023

9.	Kavitha, S., Mohan, K.S., Deepika, K., Janani, P.R., Kamali, B., Bhavadharani, S.	The Impact of Zn doping on structural and optical behavior of SrO2 NPs and Anti-Microbial activities for Zn@SrO2 NPs	Materials Today: Proceedings
10.	Chandran, K.P., Niji, P.S., Chinnammal, V., Shyam, M., Venkatanaresh, M., Jayashree, N	LiFi: A Visible Light Communication Assisted Fishermen Tracking System using GP	Proceedings of the 2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023
11.	Linto Sibi, S.P., Rajkumar, M., Govindharaj, K., Mobika, J., Nithya Priya, V., Rajendra Kumar, R.T.	Electronic sensitization enhanced p-type ammonia gas sensing of zinc doped MoS2/RGO composites	Analytica Chimica Acta
12.	Marimuthu C.N.; Thaslima A.H.A.N.; Ayyasamy M.; Anupriya R.; Haripriya R.	An Inverted U-Shaped Dual-Band MIMO Textile Antenna for WBAN and 5G Applications	2023 2nd International Conference on Electrical, Electronics, Information and Communication Technologies, ICEEICT 2023
13.	Ponnusamy, S., Samikannu, R., Venkatachary, S.K., Sukumar, S., Ravi, R.	Retraction Note to: Computer aided innovation method for detection and classification of cervical cancer using ANFIS classifier (Journal of Ambient Intelligence and Humanized Computing, (2021), 12, 6, (6231-6240), 10.1007/s12652-020-02191-9)	Journal of Ambient Intelligence and Humanized Computing
14.	Madala R.; Monica R.; Malwade S.S.; Selvakumaran S.; Budhavale S.J.; Sathyabalaji N.	A Novel Dynamic Watermarking for Secure Data Protection from Cyber Theft Based on Artificial Intelligence Supervision	Proceedings of 8th IEEE International Conference on Science, Technology, Engineering and Mathematics, ICONSTEM 2023
15.	S Shankar, M Manikandan D K Karupannasamy , C Jagadeesh Alokesh Pramanik , Animesh Kumar Basak	Investigations on the tribological behaviour, toxicity, and biodegradability of kapok oil bio-lubricant blended with (SAE20W40) mineral oil	Biomass Conversion and Biorefinery
16.	Pradeepkumar, G., Praveen Santhoshkumar, G., Rohith Bhat, C., Jeyalakshmi, M., Muthukumar, T., Kumar, N.S.	IoT based Smart U-Turn Vehicle Accident Prevention System	2nd International Conference on Sustainable Computing and Data Communication Systems, ICSCDS 2023 - Proceedings
17.	Kannan, S., Anitha, R.U., Divayapushpalakshmi, M., Kalaivani, K.S.	IoT-Deep Learning Based Activity Recommendation System	Computer Systems Science and Engineering

18.	Keerthana, S., Elango, S., Judgi, T., Vivek, S.K., Ponmurugan, P., Kumar, N.S.	Internet of Things based Smart Water Leakage Monitoring and Alert System	2023 9th International Conference on Advanced Computing and Communication Systems, ICACCS 2023
19.	Selvakumar, G., Jayashree, L.S., Arumugam, S.	Latency Minimization Using an Adaptive Load Balancing Technique in Microservices Applications	Computer Systems Science and Engineering
20.	Karthikeyan K.; Murugapandian G.S.; Karthikeyan P.; Ege O.	New results on fractional relaxation integro differential equations with impulsive conditions	Filomat
21.	Karthick, S., Vijay Shankar, P., Jayakumar, T., Merlin Suba, G., Quadir, M., Thomas Paul Roy, A.	A Novel Approach for Integrated Shortest Path Finding Algorithm (ISPSA) Using Mesh Topologies and Networks-on-Chip (NOC)	International Journal on Recent and Innovation Trends in Computing and Communication
22.	Gunasekar, T., Mohanasundaram, T., Kokila, P., Mathinraj, R.	Automatic Flood Alert System Using IoT	Proceedings of the 9th International Conference on Electrical Energy Systems, ICEES 2023
23.	Ramani, G., Pradeepkumar, G., Palanisamy, P.N., Ashika Preethi, S., Sekhar, V., Kumar, N.S.	Smart Attendance Monitoring System Using IoT	2023 9th International Conference on Advanced Computing and Communication Systems, ICACCS 2023
24.	Jamuna P.; Gowri Shankar S.; Bharathi V.; Loganayaki A.; Nandankar P.; Kumar N.S.	IoT based Energy Efficient Smart Metering System	Proceedings of the 2023 2nd International Conference on Electronics and Renewable Systems, ICEARS 2023
25.	Maheswari, K.G., Siva, C., Nalinipriya, G.	Optimal cluster based feature selection for intrusion detection system in web and cloud computing environment using hybrid teacher learning optimization enables deep recurrent neural network	Computer Communications
26.	Sasikanth, S., Arun Kumar, V., Kumar, N.S., Pradeepkumar, G.	IoT based Food Spoilage Detection Monitoring using Blynk	2023 9th International Conference on Advanced Computing and Communication Systems, ICACCS 2023
27.	Manickam, T., Iyyadurai, J., Jaganathan, M., Babuchellam, A., Mayakrishnan, M., Arockiasamy, F.S.	Effect of stacking sequence on mechanical, water absorption, and biodegradable properties of novel hybrid composites for structural applications	International Polymer Processing

28.	Sujith M.; Vijayakumar G.; Pardeshi D.B.; Madhubalan S.; Arulanantham D.	ANN-SOGI-based Shunt Active Power Filter for Harmonic Mitigation	International Journal of Electrical and Electronics Research
29.	Pradeep, K., Kavitha, S., Ayyannan, M., Selvam, N., Baskar, K., Kumar, N.S.	Secure Multimodal Biometric System Based on Robust LSB-DWT Digital Watermarking Algorithm	ICCSC 2023 - Proceedings of the 2nd International Conference on Computational Systems and Communication
30.	Sureshkumar, T., Sivaraj, R., Vijayakumar, M.	Design and implementation of a framework for blockchain based security using IoT	Journal of Intelligent and Fuzzy Systems
31.	Pradeepkumar G.; Ramraj B.; Ayyannan M.; Rohith Bhat C.; Kalavathi Devi T.; Kumar N.S.	Internet of Things (IoT) Feedback System using Raspberry Pi	Proceedings - 7th International Conference on Computing Methodologies and Communication, ICCMC 2023
32.	Maheswari, K.G., Siva, C., Priya, G.N.	An Optimal Cluster Based Intrusion Detection System for Defence Against Attack in Web and Cloud Computing Environments	Wireless Personal Communications
33.	Jayakumar, T; Ramani, G; Jamuna, P; Ramraj, B; Chandrasekaran, G; Maheswari, C; Stonier, AA; Peter, G; Ganji, V	Investigation and validation of PV fed reduced switch asymmetric multilevel inverter using optimization based selective harmonic elimination technique	AUTOMATIKA
34.	Marimuthu, C.N., Priyanka, B.	FPGA Implementation of High Speed 64-Bit Data Width True Random Number Generator using Clock Managers with Metastability	2023 5th International Conference on Electrical, Computer and Communication Technologies, ICECCT 2023
35.	Arularasan, P., Sindhusha, S., Rajesh, K., Gunasekaran, B., Thayanithi, V.	Experimental and theoretical investigation of novel organic L-Glutaminium Benzenesulfonate single crystal – DFT and experimental approach	Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy
36.	A. Saravanan, M. Rekha, S. T. Subha, D. Arulanantham, S. Baskaran and S. Gomathi	Intelligent Control system for BLDC Motor Driven Solar Water Pumping System using Wode Algorithm	Third International Conference on Artificial Intelligence and Smart Energy (ICAIS)
37.	Pandiarajan S.; Venkatesan S.	Removal of 2,4-dichlorophenol using ionic liquid [BMIM]+[PF6]- encapsulated PVDF membrane	Journal of the Indian Chemical Society
38.	Vanitha, A., Jayanalina, T., Reema, K., Renuka, P., Sindhu, K.V., Guru Prasath, M., Arokkiya Vincy, G., Sasikumar, P., Vimalan, M.,	Synthesis, Characterizations of Macro, Micro, Irradiated Crystals of KDP, the Standard Non-linear Optical Reference Material for Mechano,	Chemistry Africa

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40.	Devi Priya R.; Karthikeyan S.; Indra J.; Kirubashankar S.; Abraham A.; Gabralla L.A.; Sivaraj R.; Nandhagopal S.M.	Self-Adaptive Hybridized Lion Optimization Algorithm with Transfer Learning for Ancient Tamil Character Recognition in Stone Inscriptions	IEEE Access
41.	Saikumar K.; Arulanantham D.; Rajalakshmi R.; Prabu R.T.; Kumar P.S.; Vani K.S.; Ahammad S.H.; Eid M.M.A.; Rashed A.N.Z.; Hossain M.A.; Pal A.	Design and Development of Surface Plasmon Polariton Resonance Four-Element Triple-Band Multi-Input Multioutput Systems for LTE/5G Applications	Plasmonics
42.	Thangavel, J., Chinnaraj, G., Chandrasekaran, G., Kumarasamy, V.	Design and development of solar photovoltaic fed modular multilevel inverter using intelligent techniques for renewable energy applications	Journal of Intelligent and Fuzzy Systems
43.	Magibalan, S., Ragu, C., Nithish, D., Raveeshankar, C., Sabarish, V.	Design and fabrication of electric three-wheeled scooter for disabled persons	Materials Today: Proceedings
44.	S. Joseph, S. R, A. Royappa, A. D, G. D Anandakumar and K. V. Karthikeyan	Maximum Energy Productivity for Concurrent Wireless Data and Power Shifting-Enabled IoT Network with Energy Coordination	International Conference on Artificial Intelligence and Knowledge Discovery in Concurrent Engineering (ICECONF)
45.	Gokul Kannan K.; Ganesh Babu T.R.; Praveena R.; Sukumar P.; Sudha G.; Birunda M.	Classification of WBC cell classification using fully connected convolution neural network	Journal of Physics: Conference Series
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47.	R.Devi Priya, R.Sivaraj, N.Anitha, V.Devisurya	Tri-staged feature selection in multi-class heterogeneous datasets using memetic algorithm and cuckoo search optimization	Expert Systems with Applications- Elsevier
48.	G. Karthikeyan, Dhaarani. T. G, R. Anusuya, K. K. G, J. T and R. T. Prabu	Real-Time Sidewalk Crack Identification and Classification based on Convolutional Neural	International Conference on Automation, Computing and Renewable Systems (ICACRS)

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49.	Mohanraj, E.K., Malathy, R., Ravisankar, K.L.	Utilization of industrial waste materials in concrete-filled steel tubular columns	Revista Materia
50.	Sachin Vasant Chaudhari Shahnawaz Ayoub, Dr M Siva Dr M Dhipa, B Gayathri, V Banupriya	Modified Aquila Optimization based Route Planning Model for Unmanned Aerial Vehicles Networks	Proceedings - IEEE Conference on Automation,Computing and Renewable Systems(ICACRS 2022)
51.	Deepan Kumar, S., Karthik, R., Boopalan, N., Balakrishnan, S., Arulkumar, S., Boobalan, S.	Experimental Investigation on the Wear and Tear Characteristics of Chrome and Moly Coated Piston Rings Used in Automobile Engine Application	SAE Technical Papers
52.	P. K. Devi, D. Arulanantham, C. Kalaivanan, N. Gomathi, J. R. Arunkumar and G. Ramkumar	An Secure and Low Energy Consumption based Intelligent Street Light Managing System using LoRa Network	6th International Conference on Electronics, Communication and Aerospace Technology
53.	G. Rathanasabhapathy, K. Kamali, R. A. Sharma and D. G. K. Rai	A Wearable Circularly Polarized Wideband Microstrip Antenna for Sturdy Less, Resilient Application Using Rubber Substrate	7th International Conference on Electronics, Communication and Aerospace Technology
54.	Yuvaraj S, Venkatesh Raja K, Bakkiyaraj M, Magibalan S, Thavasilingam K, Muralidharan K	Experimental assessment on the contact characteristics of 3D printed flexible poly lactic acid (PLA) soft fingertips	International Journal of Materials Research
55.	A. Felix Sahayaraj, I. Jenish, M. Tamilselvan, M. Muthukrishnan B. Ashok Kumar	Mechanical and morphological characterization of sisal/kenaf/pineapple mat reinforced hybrid composites	Journal International Polymer Processing
56.	Nallasivam, M.P., Senniappan, V.	Advanced Perspective on Human Detection system with Hybrid Feature Set	U.Porto Journal of Engineering
57.	Selvakumar Guruswamy, Milica Pojic, Jayashree Subramanian, Jasna Mastilovic, Sohail Sarang, Arumugam Subbanagounder, Goran Stojanovic, Varun Jeoti	Toward Better Food Security Using Concepts from Industry 5.0	Sensors - MDPI

58.	Maheswari, K.G., Siva, C., Nalinipriya, G.	A hybrid soft computing technique for intrusion detection in web and cloud environment	Concurrency and Computation: Practice and Experience
59.	Devi Priya, R., Sivaraj, R., Abraham, A., Pravin, T., Sivasankar, P., Anitha, N.	Multi-Objective Particle Swarm Optimization Based Preprocessing of Multi-Class Extremely Imbalanced Datasets	International Journal of Uncertainty, Fuzziness and Knowldege-Based Systems
60.	A. R. Venkataramanan, J. Jones Praveen, B. Ashok Kumar, R. Vinothkumar, M. Vinosh	Fatigue life assessment on artificially aged TIG welded AA6061 aluminum alloy joints	AIP Conference Proceedings
61.	Ashok Kumar Babu Chellam, Manikandaprabu Pandian, Dhiyaneswaran Jaganathan, Mohammed Saliek Risavu Mydeen, Kavin Kalimuthu	Analysing the mechanical and metallurgical behavior of aluminium 7075 composite with reinforcement of silicon carbide and zirconium oxide	AIP Conference Proceedings
62.	Neelam Sanjeev Kumar , Gokul Chandrasekaran , Jayakumar Thangavel , Vanchinathan K. , Gnanavel C. , Neeraj Priyadarshi , M. S. Bhaskar , Mohamed G. Hussien , Fayez F. M. El-Sousy and Mosaad M. Ali	A Novel Design Methodology and Numerical Simulation of BLDC Motor for Power Loss Reduction	Applied Sciences
63.	Senniangiri.N, Bensamraj,J Brucely.Y, Herbert bejaxhin.A.B	Effect of SnO2 and Ag nano-additives on the performance, combustion and emission characteristics of diesel engine fueled with mango seed biodiesel	Petroleum Science and Technology
64.	Sridevi, R., Nuthakki, P., Vijay, S., Nanda, S.K., Arulanantham, D., Prabu, R.T.	Customer Identification in Healthcare using an IoT-based Multimedia Traffic Categorization Method	5th International Conference on Inventive Computation Technologies, ICICT 2022 - Proceedings
65.	T G Subarna, P Sukumar	Detection and Classification of cervical cancer images using CEENET deep learning approach	Journal of Intelligent & Fuzzy Systems- IOS Press
66.	Panneerselvam, A., Mohan, K.S., Marnadu, R., Chandrasekaran, J.	The deep investigation of structural and opto-electrical properties of Yb2O3 thin films and fabrication of Al/Yb2O3/p-Si (MIS) Schottky barrier diode	Journal of Sol-Gel Science and Technology

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2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023; Chennai; India; 25 May 2023 through 26 May 2023; Category numberCFP23BC6-ART; Code 191446

Automated AI - Equity Market Lead-Lag Prediction Based on Multivariate Time Series(Conference Paper)

Satish, N.,   Logeswari, V.,   Pundir, S.,   Kumar, A.,   Nikhil, M.Y.,   Saldahna, N.D.   ⌂

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[c]Graphic Era Deemed to Be University, Department of Computer Science Engineering, Uttrakhand, Dehradun, India

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Abstract

The lead-lag structure among time-series factors is the recognition that in multivariate time-series frameworks, some factor clusters significantly drive improvements in the framework, while various factors follow this development with time lags arises from. In this article, we propose a multivariate framework for the identification of lead-lag bundles in time series. We demonstrate that pairwise lead-lag interactions between time series can be viewed as a directed organization. There is a practical calculation for locating the lead-lag bundle set with significant pairwise imbalance in this instance. We investigate various options for the system's directed network clustering models and pairwise lead lag metric. Daily cost data on actual US values and the constructed generative model of the multivariate lead-lag time series framework are used to test the system. Using the pairwise lead-lag metric and directed tissue clustering computations, we offer a method for identifying lead-lag clusters in multivariate time series without a doubt. We demonstrate that the stationary tissue of pairwise lead-lag interactions between time series can be conceptualized as a directed tissue and that a suitable computation exists for locating the lead-lag groups in this type of tissue that have significant pairwise imbalances. increase. © 2023 IEEE.

Author keywords

Automated AI   clustering   Equity market   lead-lag prediction   Multivariate time series

Indexed keywords

Engineering controlled terms:	Artificial intelligence Commerce Digital storage Financial markets Tissue
Engineering uncontrolled terms	Automated AI Clusterings Equity markets Lead-lag Lead-lag prediction Multivariate time series Practical calculation Prediction-based Time lag Times series
Engineering main heading:	Time series

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YOLO Based Deep Learning Model for Segmenting the Color Images(Article) (Open Access)

Rasi, D.,　Antobennet, M.,　Renjith, P.N.,　Arun, M.R.,　Vanathi, D.　⚲

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Abstract

The first stage is to extract fine details from a picture using Red Green Blue (RGB) colour space is colour image segmentation. Most grayscale and colour picture segmentation algorithms use original or updated fuzzy c-means (FCM) clustering. However, due to two factors, the majority of these methods are inefficient and fail to produce the acceptable segmentation results for colour photos. The inclusion of local spatial information often results in a high level of computational complexity due to the repetitive distance computation between clustering centres and pixels within a tiny adjacent window. The second reason is that a typical neighbouring window tends to mess up the local spatial structure of images. Color picture segmentation has been improved by introducing Deep Convolution Neural Networks (CNNs) for object detection, classification and semantic segmentation. This study seeks to build a light-weight for object detector that uses a depth and colour image from a publically available dataset to identify objects in a scene. It's likely to output in the depth way by expanding the YOLO network's network architecture. Using Taylor based Cat Salp Swarm algorithm (TCSSA), the weight of the suggested model is modified to improve the accuracy of region extraction findings. It is possible to test the detector's efficacy by comparing it to various datasets. Testing showed that the suggested model is capable of segmenting input into multiple metrics using bounding boxes. The results shows that the proposed model achieved 0.20 of Global Consistency Error (GCE) and 1.85 of Variation of Information (VOI) on BSDS500 dataset, where existing techniques achieved nearly 1.96 to 1.86 of VOI and 0.25 to 0.22 of GCE for the same dataset. © 2023 by the D. Rasi, M. AntoBennet, P. N. Renjith, M. R. Arun and D. Vanathi.

Author keywords

Color Image Segmentation　Computational Complexity　Convolutional Neural Network　Fuzzy C-Means　Grayscale　Taylor based Cat Salp Swarm

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2023, Pages 156-161

2nd International Conference on Applied Artificial Intelligence and Computing, ICAAIC 2023; Salem; India; 4 May 2023 through 6 May 2023; Category numberCFP23BC3-ART; Code 189334

Innovative Method for Detecting Liver Cancer using Auto Encoder and Single Feed Forward Neural Network(Conference Paper)

Sowparnika, B., Yamini, K., Walid, M.A.A., Prasad, J., Aparna, N., Chauhan, A.

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[b]Sriher University, Cyber Security in Computer Science and Engineering, Sri Ramachandra Faculty of Engineering, Tamilnadu, Chennai, India
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Abstract

Liver cancer ranks sixth among all cancers in frequency of incidence. A CT scan is the gold standard for diagnosis. These days, CT scan images of the liver and its tumor can be segmented using deep learning and Neural Network techniques. In this proposed approach to identifying cancer cells, it's focus on four important areas: To enhance a photo by taking out imperfections and unwanted details. An ostu method is used for this purpose. Specifically, this proposed approach to use the watershed segmentation technique for image segmentation, followed by feature extraction, in an effort to isolate the offending cancer cell. After finishing the model training with AE-ELM. To do this, Extreme Learning Machine incorporates an auto encoder. To achieve effective and supervised recognition, the network's strengths of Extreme Learning Machine (ELM) are thoroughly leveraged, including its few training parameters, quick learning speed, and robust generalization ability. The auto encoder-extreme learning machine (AE-ELM) network has been shown to have a respectable recognition impact when the sigmoid activation function is used and the number of hidden layer neurons is set to 1200. According to the results of this investigation, a method based on AE-ELM can be utilized to detect the liver tumor. As compared to the CNN and ELM models, this technique achieves superior accuracy (around 99.23%). © 2023 IEEE.

Author keywords

Auto Encoder (AE)   Convolutional Neural Network (CNN)   Extreme Learning Machine   Support Vector Machine (SVM)

Indexed keywords

Engineering controlled terms:	Cancer cells Cells Computerized tomography Convolutional neural networks Deep learning Diagnosis Diseases Feedforward neural networks Image enhancement Image segmentation Knowledge acquisition Learning systems Tumors
Engineering uncontrolled terms	Auto encoder Auto encoders Cancer cells Convolutional neural network Extreme learning machine Learning machines Liver cancers Support vector machine Support vectors machine
Engineering main heading:	Support vector machines

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(2023) Proceedings of the 2nd International Conference on Edge Computing and Applications, ICECAA 2023

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Journal of Materials Science: Materials in Electronics

Volume 34, Issue 14, May 2023, Article number 1143

Characterizations of Zinc Acetate micro-crystals (ZAµ) and Co-60 irradiated micro-crystals (GZAµ) for photonic and electro-optic relevances(Article)

SenthilKannan, K.,   Balamurugapandian, N.,   Jayanalina, T.,   Vincy, G.A.,   Prasath, M.G.,   Vimalan, M.,   Sasikumar, P.

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Abstract

ZA crystal is synthesized using slow evaporation methodology at room temperature with proper ambience and the crystal is a colourless one which is acquired in 16 days. The single crystalline XRD of ZA with a,b,c and β as 15.099 Å, 9.243 Å, 4.7979 Å, 98.10° and $P2_1/c$ as space group with monoclinic system and for micro scale (ZAµ), and 100 Gy irradiated micro scales (GZAµ), the a, b, c, β are obtained and macro to micro is by 20 h of milling and irradiation is 100 Gy of Co-60 source over ZA-µ specimen and the powder XRD data is provided. UV-induced/stimulated visible Fluorescence-FL and they cannot be seen by naked eye and the present case lesser emission is due to GZAµ sample of 100 Gy which creates the vacancy sites and the reduced value and increased band gap as 3.4733 eV. The electronic transition of gamma irradiated 100 Gy of ZAµ sample is performed for the UV–visible spectrum, referred for the peak of 876 nm and %T as 91.63% and the cut-off is 243 nm for band gap of 5.1028 eV; whereas the photonic study is relevant for 5.1 eV for GZAµ data. The dielectric is maximum for 413 K and minimum for 343 K and the various is more due to the impact of irradiation of the source and maximum values is 86.4 and minimum value is 5.2. The dielectric loss pertaining to GZAµ is studied as the higher value is 473 K and lower values is 373 K, the Zig-Zag variation is due to the impact of irradiation and the more or less, higher or lower order radius is mainly due to micron level scaling of specimen and Co-60 radiation; the activation energy is calculated and specified from 0.175 to 0.125 range. The major variance is due to vacancy site creation by the dosage of Co-60. The GZAµ material is involved in filter use and the values is 5.0299 microns as the influx- GZAµ estimation for properly pronounced electronic and opto-electronic case. The second order NLO is 1.24; 1.26 and 1.32 times of referenced KDP and is 0.434, 0.441, 0.462 for reference of urea for the ZA-macro; ZA-micro and ZA-gamma irradiated micro and is 86.8, 88.2 and 92.4 mV corresponding to the KDP referenced phase matching impacting the order is GZAµ > ZAµ > ZA-macro ones. © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Indexed keywords

Engineering controlled terms: Activation energy Crystals Dielectric losses Energy gap Nanocrystals X ray diffraction Zinc compounds

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Smart RFID: Experimental Evaluation of Secured Students Attendance Handling System Using RFID(Conference Paper)

Sruthy, R.,   Kavitha, S.,   Darwin, N.,   Titus, A.,   Kishore, V.V.,   Dharshini, B.S.

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[b]Nandha Engineering College, Department of ECE, Erode, India
[c]Prathyusha Engineering College, Department of ECE, Chennai, India

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Abstract

While old techniques are time-consuming and inefficient, recent years have seen a rise in the importance of student attendance as a reflection of academic accomplishments and the effectiveness provided to any university. Recently, however, a variety of automated identifying technologies, such as Radio Frequency Identification (RFID), have gained popularity (RFID). Many studies and applications being developed to make the most of this technology, which raises certain ethical questions. RFID, or radio-frequency identification, is a wireless technology used for the purpose of identifying and monitoring an object by the transfer of data from an electronic tag, termed an RFID tag or label, via radio waves to an RFID reader. In this project, an RFID-based system has been developed to provide an attendance monitoring system. In addition to streamlining the process as a whole, automated attendance management software will also produce a well-structured and analyzed report of the pattern of student attendance and time management, which may aid in the allocation and use of human resources. In this study, RFID was used to the task of tracking student attendance, allowing teachers and administrators to more efficiently record in-person classroom statistics that may be used to determine how students should be graded and inform other administrative choices. © 2023 IEEE.

Author keywords

Graphical User Interface (GUI)   Internet of Things (IoT)   RFID

Indexed keywords

Engineering controlled terms:	Data transfer Internet of things Radio frequency identification (RFID) Radio waves Students
Engineering uncontrolled terms	Electronic tags Ethical question Experimental evaluation Graphical user interface Handling systems Internet of thing Radio-frequency-identification Student attendances Study and applications Wireless technologies
Engineering main heading:	Graphical user interfaces

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Pratheeba, C.,   Muthuvinayagam, M.,   Siva Ramkumar, M.,   Rohith Bhat, C.,   Maniraj, P.,   Kumar, N.S.   👤

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Abstract

Despite its importance. more than 800 million people still lack access to electricity. Individuals in many rural areas lack access to a consistent supply of energy due to the high cost of grid extension. Off-grid solar systems enable rural residents to connect to the energy 2rid and power their homes' lights. appliances. and other electronic equipment. This document provides a brief overview of a solar power system that can be used to Dower remote homes. Solar panels. a charge controller. batteries. and an inverter make up the system. Sunlight is converted into direct current by solar panels. which is then stored in batteries. The charge controller regulates the charging and discharging cycles of the battery pack in order to keep the cells healthy and long-lasting. The inverter converts the stored DC electricity into the alternating current (AC) power that appliances and other AC loads require. The proposed method is intended to be simple and low-cost. making it an appropriate option for regions with limited resources and low growth. The system can be customized to meet the exact energy needs of the house by adding additional solar panels or batteries. Furthermore. the structure is made up of discrete components. making it easier to assemble and maintain. Off-grid solar power systems are a cost-effective and efficient wav of bringing electricity to areas that are not connected to the power grid. The proposed system describes the design and installation of a solar-powered. direct current (DC) power source for isolated dwellings. The strategy promotes long-term economic growth and raises the living standards of rural families. © 2023 IEEE.

Author keywords

Battery Inverter Microgrid Off Grid Solar Inverter Solar Panel

Indexed keywords

Engineering controlled terms:
Battery management systems Battery Pack Charging (batteries) Cost effectiveness Electric impedance measurement Electric inverters Electric loads Oscillators (electronic) Rural areas Solar energy

Engineering uncontrolled terms
Battery Charge controllers Energy Inverte Microgrid Off-grid solar Off-grids Solar inverter Solar panels Solar Power Systems

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2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023; Chennai; India; 25 May 2023 through 26 May 2023; Category numberCFP23BC6-ART; Code 191446

Weather Impact Nano Patch Hybrid Satellite Communication with AI Monitored Network Information Protection System(Conference Paper)

Shanthi, P.,   Arulkarthick, E.K.,   Supreeth, B.R.,   Vyas, N.K.,   Singh, D.P.,   Selvameena, R.   ⛷

[a]Amet University, Eee Marine, TamilNadu, Chennai, India
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[c]Oxford Degree and Pg College, Sir. M. Vishveshwaraiah Layout, Department of Computer Science, Karnataka, Ullal, Bangalore, India

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Abstract

Artificial intelligence (artificial intelligence) is a quickly extending area of software engineering that is expected to modify numerous features of our progress significantly. Without falling back on an express insightful treatment of those linkages, man-made intelligence approaches are utilized to examine immense volumes of unstructured and heterogeneous information and find and exploit nuanced and complex connections among them. With satellite communication, there is an opportunity for administration coherence in both covered and revealed regions, as well concerning administration comprehensiveness and versatility. Be that as it may, various snags should initially be conquered to procure these benefits since satellite networks have more complicated asset the board, network control, network security, range the executives, and energy use issues than earthly networks do. The subject of shielding communication in satellite networks is canvassed in this article. We investigate various security dangers that hybrid satellite networks might experience and audit the different safety efforts put out to safeguard information transmissions in these networks. © 2023 IEEE.

Author keywords

Artificial intelligence   Hybrid satellite communication   Network information protection system   Weather

Indexed keywords

Engineering controlled terms: Artificial intelligence   Satellite communication systems   Satellites   Software engineering

Engineering uncontrolled terms   Heterogeneous information   Hybrid satellite communication   Hybrid satellites   Information protection systems   Network information   Network information protection system   Satellite communications   Satellite network   Weather   Weather impact

Engineering main heading: Network security

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IoT based Smart ID Card for Working Woman Safety(Conference Paper)

Gowrishankar, V., Prabhakaran, G., Tamilselvan, K.S., Judgi, T., Parimala Devi, M., Murugesan, A.

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[b]Nandha Engineering College, Department of Electronics and Communication Engineering, Erode, India
[c]KPR Institute of Engineering and Technology, Department of Electronics and Communication Engineering, Coimbatore, India

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Abstract

Working women must be protected from assault in many parts of the world. A smart ID card based on the Internet of Things (IoT) could make female workers safer and be one solution to this problem. Because of the built-in sensors and connectivity components, this ID card will be able to sense and respond to its surroundings. If the sensors detect something unusual, such as a sudden movement or a loud noise, they will send a signal to the system. Following the completion of the data analysis, the system takes any necessary actions, such as sending alerts to security personnel or notifying on-call personnel. The proposed system will provide the user with access to an emergency panic button. The system's GPS component will track the user's location and send alerts to the appropriate parties. There will also be a cloud-based monitoring system with the proposed approach. This allows the employer or loved ones of the worker to track the worker's whereabouts and activities in real time. The system will analyze the data using machine learning techniques, and the results will reveal the worker's behavior and level of safety. A smart ID card linked to the Internet of Things (IoT) could help women work in safer environments. The proposed technology would enable real-time monitoring, predictive alarms, and data analysis. All of these precautions will help ensure female employees' safety and avoid unpleasant situations. © 2023 IEEE.

Author keywords

ESP32 Controller GPS IoT IoT Interface Smart ID Card Woman Safety

Indexed keywords

Engineering controlled terms:	Data handling Information analysis Internet of things Learning systems

Engineering uncontrolled terms	Built-in sensors Connectivity components ESP32 controller Female workers ID cards Internet of thing interface Sensor components Smart ID cards Woman safety Workers'

Engineering main heading:	Personnel

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Materials Today: Proceedings

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The Impact of Zn doping on structural and optical behavior of SrO_2 NPs and Anti-Microbial activities for Zn@SrO_2 NPs

(📄 Article in press ❓)

Kavitha, S.,   Mohan, K.S.,   Deepika, K.,   Janani, P.R.,   Kamali, B.,   Bhavadharani, S.   ⚲

[a]Department of Electronics and Communication Engineering, Nandha Engineering College (Autonomous), Tamilnadu, Erode, 638 052, India
[b]Department of Physics, Nandha Engineering College (Autonomous), Tamilnadu, Erode, 638 052, India

Abstract

In the proposed study, pure SrO_2 and Zn@SrO_2 were synthesized using a simple, effective, and economical sol–gel assisted hydrothermal technique (NPs). The structural, optical morphological, and biological activities of the prepared nanoparticles at various concentrations, such as 0, 10, and 20 wt%, were studied utilizing a variety of techniques. For pure SrO_2 and Zn@SrO_2 nanoparticles, the XRD showed tetragonal and hexagonal structures, respectively. When compared to Zn@SrO_2 Nano particles, the pure SrO_2 surface morphology variations, as seen by scanning electron microscopy (SEM). The examination of elemental compositions has determined that Sr, Zn, and O are present. Band gap (Eg) diminished from 5.92 to 5.65 eV with a rise in doping concentration, according to optical characterization of the sample, which was measured by UV–visible spectra. Diverse functional groups, including C[dbnd]O, O[dbnd]H, and C[dbnd]C, were validated using Fourier-transform infrared spectroscopy (FTIR). Gram-positive and gram-negative microorganisms were used in antibacterial investigations. The outcome showed that Zn@SrO_2 particles had increased the antibacterial action against a bunch of microscopic organisms, and its presentation was enhanced with the gradual addition of Zn particle focus within SrO_2 NPs. © 2023

Author keywords

Anti-microbial   Nano particle   SEM   XRD   Zn@SrO_2

Indexed keywords

Engineering controlled terms:	Energy gap Fourier transform infrared spectroscopy Microorganisms Morphology Nanoparticles Sols Strontium compounds Surface morphology X ray diffraction Zinc
Engineering uncontrolled terms	Anti-microbial Anti-microbial activity Nanoparti-cles Optical behaviour Simple++ Structural behaviors Synthesised XRD Zn doping Zn@SrO2
Engineering main heading:	Scanning electron microscopy

Funding details

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LiFi: A Visible Light Communication Assisted Fishermen Tracking System using GPS(Conference Paper)

Chandran, K.P.,   Niji, P.S.,   Chinnammal, V.,   Shyam, M.,   Venkatanaresh, M.,   Jayashree, N.   ⦸

[a]Prathyusha Engineering College, Department of ECE, Chennai, India
[b]Nandha Engineering College, Department of ECE, Erode, India
[c]Rajalakshmi Institute of Technology, Department of ECE, Chennai, India

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Abstract

The lack of a clear maritime border between the countries is a major contributor to the brutality that occurs across international boundaries. A pre-programmed warning system that would advise fisherman when they are about to breach the line and avert an emergency is something that social activists have been calling for. The following debate centers on the potential development of a warning system that may routinely intimate the fisherman as they approach the sea boundary. The costs associated with implementing GPS will be high. Using a Li-Fi network designed to deliver signals to the boat will be more efficient than relying on GPS to track location. The term "Li-Fi"refers to a type of wireless optical communication that uses visible light and is both fast and completely networked. Using the suggested approach, a light signal may be sent from a sensor installed in a ship's workplace to the cabin of the officer in charge of that area. There is a gas sensor to detect the presence of poisonous gases, a fire sensor to signal the existence of a fire, and a water leakage sensor to signal the presence of water leaks in the ship. The information gleaned from the sensors is converted into sound before being relayed through Li-Fi to the receiver. The relevance of the correspondence has increased as a way of transmitting data and information over long distances using light force and Visible Light Communication (VLC). The components of this system collaborate to keep a watchful eye on the waterways at all times. Ready fishermen will get a dependable reaction before they inadvertently go overboard. © 2023 IEEE.

Author keywords

Fishermen's tracking system   Global Positioning System (GPS)   Li-Fi   visible light communication (VLC)

Indexed keywords

Engineering controlled terms: Leakage (fluid)   Ships   Tracking (position)   Visible light communication

Engineering uncontrolled terms   Fisherman tracking system   Gas-sensors   Global positioning system   Light signal   Maritime borders   Poisonous gas   Tracking system   Visible light   Visible light communication   Wireless optical communication

Engineering main heading: Global positioning system

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Volume 1248, 1 April 2023, Article number 340932

Electronic sensitization enhanced p-type ammonia gas sensing of zinc doped MoS$_2$/RGO composites(Article)

Linto Sibi, S.P.,   Rajkumar, M.,   Govindharaj, K.,   Mobika, J.,   Nithya Priya, V.,   Rajendra Kumar, R.T.   ⊙

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[b]Advanced Materials and Devices Laboratory (AMDL), Department of Nanoscience and Technology, Bharathiar University, Tamil Nadu, Coimbatore, 641046, India
[c]Department of Physics, Nandha Engineering College, Tamil Nadu, Erode, 638052, India

Abstract

Zinc (Zn) doping induced synergetic effects of defects engineering and heterojunction in Molybdenum disulphide/Reduced graphene oxide (MoS$_2$/RGO) effectively enhances the p-type Volatile organic compounds (VOC) gas sensing traits and helps in tailoring the over dependence on noble metals for surface sensitization. Through this work, we have successfully prepared Zn doped MoS$_2$ grafted on RGO employing an in-situ hydrothermal method. Optimal doping concentration of Zn dopants in the MoS$_2$ lattice triggered more active sites on the basal plane of MoS$_2$ with the aid of defects promoted by the zinc dopants. Effective intercalation of RGO further boost up the exposed surface area of Zn doped MoS$_2$ for further interaction of ammonia gas molecules. Besides, smaller crystallite size brought out by 5% Zn dopants aids in efficient charge transfer across the heterojunctions that further amplifies the ammonia sensing traits with a peak response of 32.40% along with a response time of 21.3 s and recovery time of 44.90 s. The as prepared ammonia gas sensor exhibited excellent selectivity and repeatability. The obtained results reveal that transition metal doping into the host lattice proves to be a promising approach for VOC sensing characteristics of p-type gas sensors and gives insight about the importance of dopants and defects for the development of highly efficient gas sensors in the future. © 2023 Elsevier B.V.

Author keywords

Defect engineering   Heterojunction   p-type ammonia gas sensor   RGO   VOC   Zinc doped MoS$_2$

Indexed keywords

Engineering controlled terms:	Ammonia Charge transfer Chemical detection Chemical sensors Crystallite size Gas detectors Gas sensing electrodes Gases Graphene Layered semiconductors Molybdenum disulfide Volatile organic compounds Zinc
Engineering uncontrolled terms	Ammonia gas Ammonia gas sensors Defect engineering Gas sensing Gas-sensors P-type P-type ammonia gas sensor RGO Zinc doped Zinc doped MoS2
Engineering main heading:	Heterojunctions

Cited by 3 documents

Fan, S. , Liu, Q. , Ramakrishna, S.
Room-temperature flexible ammonia sensor based on SnO2 quantum dots modified graphene oxide
(2023) *Vacuum*

Ghaleghafi, E. , Rahmani, M.B.
Characterization and room temperature ammonia sensing application of hydrothermally synthesized MoS2/RGO nanocomposites
(2023) *Diamond and Related Materials*

Li, J. , Hu, J. , Li, N.
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An Inverted U-Shaped Dual-Band MIMO Textile Antenna for WBAN and 5G Applications(Conference Paper)

Marimuthu, C.N.,   Thaslima, A.H.A.N.,   Ayyasamy, M.,   Anupriya, R.,   Haripriya, R.

Nandha Engineering College, Department of ECE, Tamilnadu, Erode, India

Abstract

The Microstrip Patch Antenna is a low-profile radio antenna that can be mounted on a flat surface. It's a narrow-band and wide-beam fed antenna made by etching, with a metal trace pattern attached to a dielectric substrate such as a printed circuit board. A continuous metal layer forms a ground plane on the substrate's opposite side. The main objective of this project is to design, develop, and test a Microstrip Patch Antenna suitable for use at a 5 GHz frequency. The study emphasizes using HFSS software to simulate and analyze the antenna's radiation pattern, gain, directivity, and efficiency. The proposed MIMO antenna is also evaluated for robustness under different bending configurations. The simulation and experimental results show a satisfactory agreement in both planar and bending conditions. The MIMO antenna achieves good impedance bandwidth at the 5 GHz frequency, which is significant for its performance in practical applications. © 2023 IEEE.

Author keywords

Communications   Inverted U-Shaped Antenna   Multiple Input Multiple Output (MIMO)   Textile Antenna
Wireless Body Area Network (WBAN)

Indexed keywords

Engineering controlled terms:
5G mobile communication systems   Antenna grounds   Dielectric materials
Electric impedance   Etching   Microstrip antennas   Microwave antennas   MIMO systems
Printed circuit boards   Radiation efficiency   Slot antennas   Textiles   Trace elements
Wearable antennas   Wireless local area networks (WLAN)

Engineering uncontrolled terms
Inverted U-shaped antenna   Micro-strip patch antennas   Microstrip-patch antenna
Multiple input multiple output   Multiple inputs   Multiple outputs   Textile antennas
U-shaped   Wireless body area network

Engineering main heading:
Directional patterns (antenna)

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Volume 14, April 2023, Page 41

Retraction Note to: Computer aided innovation method for detection and classification of cervical cancer using ANFIS classifier (Journal of Ambient Intelligence and Humanized Computing, (2021), 12, 6, (6231-6240), 10.1007/s12652-020-02191-9)(Erratum)(Open Access)

Ponnusamy, S., Samikannu, R., Venkatachary, S.K., Sukumar, S., Ravi, R. 👤

[a]Department of Electronics and Communication Engineering, Nandha Engineering College, Tamil Nadu, Erode, India
[b]Faculty of Electrical Computer and Telecommunications Engineering, Botswana International University of Science and Technology, Palapye, Botswana
[c]Information Technology, Grant Thornton, Gaborone, Botswana

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Original document ⓘ

Computer aided innovation method for detection and classification of cervical cancer using ANFIS classifier
(2021) Journal of Ambient Intelligence and Humanized Computing, 12 (6), pp. 6231-6240.

Abstract

The Editor-in-Chief and the publisher have retracted this article. This article was submitted to be part of a guest-edited issue. An investigation concluded that the editorial process of this guest-edited issue was compromised by a third party and that the peer review process has been manipulated. Based on the investigation's findings the Editor-in-Chief therefore no longer has confidence in the results and conclusionsof this article. Sukumar Ponnusamy has stated on behalf of all authors that they disagree with this retraction. © Springer-Verlag GmbH Germany, part of Springer Nature 2022.

👤 Ponnusamy, S.; Department of Electronics and Communication Engineering, Nandha Engineering College, Tamil Nadu, Erode, India;

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A Novel Dynamic Watermarking for Secure Data Protection from Cyber Theft Based on Artificial Intelligence Supervision(Conference Paper)

Madala, R.,   Monica, R.,   Malwade, S.S.,   Selvakumaran, S.,   Budhavale, S.J.,   Sathyabalaji, N.   ⊙

[a]University of Cumberlands, Information Technology, Durham, NC, United States
[b]Nandha Engineering College, Department of Electronics and Communication Engineering, Tamilnadu, Erode, 52, India
[c]Dr.Vishwanath Karad School of Polytechnic and Skill Development, Department of Computer Engineering, Maharashtra, Pune, India

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Abstract

One of the centre innovations of the Fourth Modern Insurgency (otherwise called Industry 4.0) is artificial intelligence (computer based intelligence), which can be utilized to shield Web associated gadgets from dangers, assaults, harm, and undesirable access. The current range of cyber security issues can be deftly handled by utilising well-known simulated intelligence techniques such as AI and profound learning procedures, the possibility of normal language handling, information portrayal and thinking, as well as the possibility of information or rule-based master frameworks displaying. In view of these man-made intelligence strategies, we give an exhaustive examination of "Simulated intelligence driven cyber security"in this article, which may be helpful for clever cyber security government agencies and the board. The cyber security registration method can be made more computerised and intelligent than the standard security frameworks by the security intelligence exhibiting in light of such simulated intelligence techniques.Likewise, we present various choices for future examination that fall inside the domain of our examination. At last, this paper's primary objective is to give direction and references to industry specialists in the field of cyber security, especially from a canny registering or simulated intelligence based specialized viewpoint. © 2023 IEEE.

Author keywords

Artificial intelligence   Cyber theft   Information security   Secure data protection

Indexed keywords

Engineering controlled terms:	Crime Cybersecurity
Engineering uncontrolled terms	Current range Cybe theft Cyber security Government agencies Learning procedures Registration methods Rule based Secure data Secure data protection Security issues
Engineering main heading:	Artificial intelligence

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Biomass Conversion and Biorefinery

Volume 13, Issue 5, April 2023, Pages 3669-3681

Investigations on the tribological behaviour, toxicity, and biodegradability of kapok oil bio-lubricant blended with (SAE20W40) mineral oil(Article)

Shankar, S., Manikandan, M., Karupannasamy, D.K., Jagadeesh, C., Pramanik, A., Basak, A.K.   ⚇

[a]Department of Mechatronics Engineering, Kongu Engineering College, Tamil Nadu, Erode, 638 060, India
[b]Department of Mechanical Engineering, Nandha Engineering College, Tamil Nadu, Erode, 638 052, India
[c]Department of Mechanical Engineering, Kongu Engineering College, Tamil Nadu, Erode, 638 060, India

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Abstract

Vegetable oil becomes a viable alternative to mineral or synthetic oils due to its biodegradable nature. In this work, one such vegetable-based non-edible oil (kapok oil) is blended with a mineral-based oil (SAE20W40) at 15 and 30% ratio (by volume), and its changes in thermal, tribological, and corrosive properties were evaluated. Four-ball tribometer is utilized to assess its dynamic friction coefficient and the wear scar diameter of the worn out area on the ball. Biodegradability and toxicity test of kapok oil were examined and compared with the palm and mineral oil through bacterial growth and brine shrimp assay methods, respectively. The results showed that the dynamic friction coefficient and specific wear rate of the blended oil were lesser than the mineral oil. The mineral oil produced a higher roughness average (R_a) value than that of the blended oil. Kapok oil shows an adequate tribological properties (anti-friction and anti-wear) in contrast to the other vegetable oils. Overall, kapok oil had a high biodegradability nature and lower toxicity than the mineral oil. © 2021, The Author(s), under exclusive licence to Springer-Verlag GmbH, DE part of Springer Nature.

Author keywords

(Biodegradable) (Four-ball tribometer) (Kapok oil) (SAE20W40) (Toxicity)

Indexed keywords

Engineering controlled terms: (Biodegradability) (Friction) (Mineral oils) (Minerals) (Palm oil) (Tribology) (Wear of materials)

Engineering uncontrolled terms   (Bio lubricants) (Biodegradable) (Blended oil) (Dynamic friction coefficient) (Four-ball) (Four-ball tribometer) (Kapok oil) (Sae20w40) (Tribological behaviour) (Tribometers)

Engineering main heading: (Toxicity)

Cited by 5 documents

Putrawan, I.D.G.A. , Azharuddin, A. , Jumrawati, J.

Preparing epoxidized vegetable oil from waste generated by the kapok fiber industry and assessing its thermal stabilization effect as a co-stabilizer for polyvinyl chloride

(2023) Heliyon

He, C. , Yan, Y. , Li, S.

Modification of cottonseed oil with lipases and ionic liquid catalysts to prepare highly branched lubricant with low pour point and high viscosity

(2023) Biochemical Engineering Journal

Lee, C.T. , Lee, M.B. , Mong, G.R.

A bibliometric analysis on the tribological and physicochemical properties of vegetable oil–based bio-lubricants (2010–2021)

(2022) Environmental Science and Pollution Research

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⚇ Shankar, S.; Department of Mechatronics Engineering, Kongu Engineering College, Tamil Nadu, Erode, India;

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Document details - IoT based Smart U-Turn Vehicle Accident Prevention System

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2023, Pages 1226-1231

2nd International Conference on Sustainable Computing and Data Communication Systems, ICSCDS 2023; Erode; India; 23 March 2023 through 25 March 2023; Category numberCFP23AZ5-ART; Code 188200

IoT based Smart U-Turn Vehicle Accident Prevention System(Conference Paper)

Pradeepkumar, G.,   Praveen Santhoshkumar, G.,   Rohith Bhat, C.,   Jeyalakshmi, M.,   Muthukumar, T.,   Kumar, N.S.   ⚲

[a]Kpr Institute of Engineering and Technology, Department of Electronics and Communication Engineering, Coimbatore, India
[b]Nandha Engineering College, Department of Electronics and Communication Engineering, Tamilnadu, Erode, India
[c]Saveetha School of Engineering, Simats, Department of Computer Science and Engineering, Chennai, India

View additional affiliations ⌄

Abstract

Unintentional deaths occur at a very high rate in developing countries. Curved roads have significantly more fatalities than straight roads. This occurs mainly on U-turns, hairnin turns, and narrow mountain roads. Drivers in this position cannot see the vehicle approaching from the opposite direction. As a result, thousands of people are killed in car accidents every year. The best way to avoid further accidents is to alert the car driver approaching from the side. Place the ultrasonic range detection sensor on one side of the road before the bend and the light indicator system on the opposite side after the bend. When a vehicle approaches from afar, an ultrasonic sensor on one side of the road sends a signal to the other side of the road via a light system. In response to a warning, the driver may stop the car until the other vehicle has passed. A buzzer will also be used to warn the driver of the car that is approaching. © 2023 IEEE.

Author keywords

Arduino   Attendance Monitoring   IoT   IR Sensor

Indexed keywords

Engineering controlled terms:	Accidents Developing countries Internet of things Roads and streets Vehicles
Engineering uncontrolled terms	Arduino Attendance monitoring Car accidents Car driver High rate IoT IR sensor Prevention systems Unintentional deaths Vehicle accidents
Engineering main heading:	Ultrasonic applications

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Computer Systems Science and Engineering

Volume 45, Issue 2, 2023, Pages 2001-2016

IoT-Deep Learning Based Activity Recommendation System(Article)(Open Access)

Kannan, S.,   Anitha, R.U.,   Divayapushpalakshmi, M.,   Kalaivani, K.S.   ⚲

[a]Department of Electronics and Communication Engineering, Nandha Engineering College, Tamilnadu, Perundurai, 638052, India
[b]Department of Computer Science, Sona College of Arts and Science, Tamilnadu, Salem, 636005, India
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View additional affiliations ⌄

Abstract

The rising use of mobile technology and smart gadgets in the field of health has had a significant impact on the global community. Health professionals are increasingly making use of the benefits of these technologies, resulting in a major improvement in health care both in and out of clinical settings. The Internet of Things (IoT) is a new internet revolution that is a rising research area, particularly in health care. Healthcare Monitoring Systems (HMS) have progressed rapidly as the usage of Wearable Sensors (WS) and smartphones have increased. The existing framework of conventional telemedicine's store-and-forward method has some issues, including the need for a nearby health centre with dedicated employees and medical devices to prepare patient reports. Patients' health can be continuously monitored using advanced WS that can be fitted or embedded in their bodies. This research proposes an innovative and smart HMS, which is built using recent technologies such as the IoT and Machine Learning (ML). In this study, we present an innovative and intelligent HMS based on cutting-edge technologies such as the IoT and Deep Learning (DL) + Restricted Boltzmann Machine (RBM). This DL + RBM model is clever enough to detect and process a patient's data using a medical Decision Support System (DSS) to determine whether the patient is suffering from a major health problem and treat it accordingly. The recommended system's behavior is increasingly investigated using a cross-validation test that determines various demographically relevant standard measures. Through a healthcare DSS, this framework is clever enough to detect and analyze a patient's data. Experiment results further reveal that the proposed system is efficient and clever enough to deliver health care. The data reported in this study demonstrate the notion. This device is a low-cost solution for people living in distant places; anyone can use it to determine if they have a major health problem and seek treatment by contacting nearby hospitals. © 2023 CRL Publishing. All rights reserved.

Author keywords

(activity recommender system) (body sensors) (Deep learning) (healthcare system) (IoT)

Indexed keywords

Engineering controlled terms: (Decision support systems) (Deep learning) (Learning systems) (mHealth) (Recommender systems) (Wearable sensors)

Engineering uncontrolled terms   (Activity recommende system) (Body sensors) (Deep learning) (Global community) (Healthcare monitoring) (Healthcare systems) (Mobile Technology) (Monitoring system) (Patient data) (Restricted boltzmann machine)

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Document details - Internet of Things based Smart Water Leakage Monitoring and Alert System

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2023 9th International Conference on Advanced Computing and Communication Systems, ICACCS 2023

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9th International Conference on Advanced Computing and Communication Systems, ICACCS 2023; Coimbatore; India; 17 March 2023 through 18 March 2023; Category numberCFP23YAF-ART; Code 188417

Internet of Things based Smart Water Leakage Monitoring and Alert System(Conference Paper)

Keerthana, S., Elango, S., Judgi, T., Vivek, S.K., Ponmurugan, P., Kumar, N.S. 👤

[a]J K K Nataraja College of Engineering and Technology, Department of Electrical and Electronics Engineering, Komarapalayam, 638183, India
[b]Nandha Engineering College, Department of Electrical and Electronics Engineering, Tamilnadu, Erode, India
[c]Sathyabama Institute of Science and Technology, Department of Computer Science and Engineering, India

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Abstract

It is critical to manage water supply in a safe and efficient manner. Significant amounts of water are lost each year as a result of leaks in water distribution systems (WDN). As a result, locating leaks in a reliable manner is critical. Water leaks can be detected using monitoring software that analyses the flow of water. Apps that track the user's location can be extremely useful. If this technology is widely adopted, it will aid in the resolution of water management issues such as human error and waste of limited water resources. Water leaks can be located predictably using the Internet of Things (Internet of Things). Many countries struggle to get enough water, but the situation is not hopeless. It is critical to accurately locate water leaks in order to reduce system resistance. © 2023 IEEE.

Author keywords

Blynk App   Blynk Server   IoT   Leakage Monitoring   Water Detector   WDN

Indexed keywords

Engineering controlled terms:
Electric power distribution   Internet of things   Leakage (fluid)   Waste management   Water management   Water supply

Engineering uncontrolled terms
Alert systems   Blynk app   Blynk server   IoT   Leakage monitoring   Leakage monitoring systems   User location   Water detector   Water leakage   Water leaks

Engineering main heading:
Water distribution systems

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Computer Systems Science and Engineering

Volume 46, Issue 1, 2023, Pages 1215-1231

Latency Minimization Using an Adaptive Load Balancing Technique in Microservices Applications(Article)(Open Access)

Selvakumar, G.,   Jayashree, L.S.,   Arumugam, S.

[a]Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Coimbatore, 641407, India
[b]Department of Computer Science and Engineering, PSG College of Technology, Coimbatore, 641004, India
[c]Department of Computer Science and Engineering, Nandha College of Engineering, Erode, 638052, India

Abstract

Advancements in cloud computing and virtualization technologies have revolutionized Enterprise Application Development with innovative ways to design and develop complex systems. Microservices Architecture is one of the recent techniques in which Enterprise Systems can be developed as fine-grained smaller components and deployed independently. This methodology brings numerous benefits like scalability, resilience, flexibility in development, faster time to market, etc. and the advantages; Microservices bring some challenges too. Multiple microservices need to be invoked one by one as a chain. In most applications, more than one chain of microservices runs in parallel to complete a particular requirement To complete a user's request. It results in competition for resources and the need for more inter-service communication among the services, which increases the overall latency of the application. A new approach has been proposed in this paper to handle a complex chain of microservices and reduce the latency of user requests. A machine learning technique is followed to predict the weighting time of different types of requests. The communication time among services distributed among different physical machines are estimated based on that and obtained insights are applied to an algorithm to calculate their priorities dynamically and select suitable service instances to minimize the latency based on the shortest queue waiting time. Experiments were done for both interactive as well as non interactive workloads to test the effectiveness of the solution. The approach has been proved to be very effective in reducing latency in the case of long service chains. © 2023 CRL Publishing. All rights reserved.

Author keywords

cloud computing   latency optimization   load balancing   Microservices   netflix

Indexed keywords

Engineering controlled terms: Balancing   Learning systems

Engineering uncontrolled terms: Adaptive load balancing   Cloud computing technologies   Cloud-computing   Latency optimizations   Load balancing technique   Load-Balancing   Microservice   Minimisation   Netflix   Virtualization technologies

Engineering main heading: Cloud computing

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New results on fractional relaxation integro differential equations with impulsive conditions(Article)

Karthikeyan, K.,   Murugapandian, G.S.,   Karthikeyan, P.,   Ege, O.   ⊘   ⊘

[a]Department of Mathematics, Centre for Research and Development, KPR Institute of Engineering and Technology, Tamil Nadu, Coimbatore, 641407, India
[b]Department of Mathematics, Nandha Engineering College, Tamil Nadu, Erode, 638052, India
[c]Department of Mathematics, Sri Vasavi College, Tamil Nadu, Erode, India

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Abstract

The aim of this paper is to study the existence and uniqueness of solutions for nonlinear fractional relaxation impulsive integro-differential equations with boundary conditions. Some results are established by using the Banach contraction mapping principle and the Schauder fixed point theorem. An example is provided which illustrates the theoretical results. © 2023, University of Nis. All rights reserved.

Author keywords

Existence   Fixed point   Fractional relaxation impulsive integro-differential equations   Liouville-Caputo fractional derivative   Nonlinear equations   Riemann-Liouville fractional derivative   Uniqueness

⊘ Murugapandian, G.S.; Department of Mathematics, Nandha Engineering College, Tamil Nadu, Erode, India;

⊘ Ege, O.; Department of Mathematics, Ege University, Izmir, Bornova, Turkey;

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International Journal on Recent and Innovation Trends in Computing and Communication

Volume 11, 2023, Pages 87-95

A Novel Approach for Integrated Shortest Path Finding Algorithm (ISPSA) Using Mesh Topologies and Networks-on-Chip (NOC)(Article)(Open Access)

Karthick, S.,   Vijay Shankar, P.,   Jayakumar, T.,   Merlin Suba, G.,   Quadir, M.,   Thomas Paul Roy, A.

[a]Department of Electronics and Communication Engineering, Veltech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Tamil Nadu, Chennai, 600062, India
[b]Department of Electrical and Electronics Engineering, Geethanjali College of Engineering and Technology, Telangana, Hyderabad, 501301, India
[c]Department of Electrical and Electronics Engineering, Nandha Engineering College, Tamilnadu, Erode, 638052, India

View additional affiliations ⌄

Abstract

A novel data dispatching or communication technique based on circulating networks of any network IP is suggested for multi data transmission in multiprocessor systems using Networks-On-Chip (NoC). In wireless communication network management have some negatives have heavy data losses and traffic of data sending data while packet scheduling and low performance in the varied network due to workloads. To overcome the drawbacks, in this method proposed system is Integrated Shortest Path Search Algorithm (ISPSA) using mesh topologies. The message is sent to IP (Internet Protocol) in the network until the specified bus accepts it. Integrated Shortest Path Search Algorithm for communication between two nodes is possible at any one moment. On-chip wireless communications operating at specific frequencies are the most capable option for overcoming metal interconnects multi-hop delay and excessive power consumption in Network-on-Chip (NoC) devices. Each node can be indicated by a pair of coordinates (level, position), where the level is the tree's vertical level and the view point is its horizontal arrangement in the sequence of left to right. The output gateway node's n nodes are linked to two nodes in the following level, with all resource nodes located at the bottommost vertical level and the constraint of this topology is its narrow bisection area. The software Xilinx 14.5 tool by using that overall performance analysis of mesh topology, each method are reduced data losses with better accuracy although the productivity of the delay is decreased by 21 % was evaluated and calculated.. © 2023 Auricle Global Society of Education and Research. All rights reserved.

Author keywords

Integrated Shortest Path Search Algorithm (ISPSA)   Internet Protocol   Mesh Topology   Network-on-Chip (NoC)

Cited by 3 documents

Singh, A. , Beemkumar, N. , Mehrotra, T.

Multi-Objective Building Retrofitting Utilizing Evolutionary Algorithms and Machine Learning Models

(2023) International Journal of Intelligent Systems and Applications in Engineering

Lahoti, S.

An Upgraded Entropy and Fractal Investigation of HRV Signal for Identification of Heart Dynamics-A Multiscale Methodology

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Proceedings of the 9th International Conference on Electrical Energy Systems, ICEES 2023

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9th International Conference on Electrical Energy Systems, ICEES 2023; Chennai; India; 23 March 2023 through 25 March 2023; Category numberCFP2385K-ART; Code 188394

Automatic Flood Alert System Using IoT(Conference Paper)

Gunasekar, T.,   Mohanasundaram, T.,   Kokila, P.,   Mathinraj, R.

[a]Kongu Engineering College, Department of EEE, Perundurai, Erode, India
[b]M.S Ramaiah Institute of Technology, Department of Management Studies, Bangalore, India
[c]Nandha Engineering College, Department of Ece, Perundurai, Erode, India

Abstract

The nearby human beings with inside the catchment region of a river have been stuck ignorant of an approaching flash flood/launch of water from dams of Hydro Papers upstream. This caused unlucky and useless lack of treasured human lives. District management has cordoned off get right of entry to the river catchment and public announcement vehicles are caution which desires to be computerized and without guide intervention to make it greater effective. There can be a critical database connecting all hydropower stations inside the country in which statistics earlier than liberating of water from dams of all initiatives could be consolidated. From the database, there is the information passed to the household devices and to the mobiles where the area will mostly cause damage. This automatically alerted system alerts people in the area increases corresponding to the increases in the level of the water in the dam. So, it will save the people and recourses. The paper is implemented using a IoT to monitor the dam and avoid the damage caused due to the flooding © 2023 IEEE.

Author keywords

Central database   hydropower station   IoT   Microcontroller   Mobile

Indexed keywords

Engineering controlled terms: Catchments   Dams   Database systems   Floods   Hydroelectric power   Hydroelectric power plants   Internet of things   Runoff

Engineering uncontrolled terms   Central database   Flash-floods   Flood alert systems   Household devices   Human being   Human lives   Hydropower stations   IoT   Mobile   River catchment

Engineering main heading: Microcontrollers

Gunasekar, T.; Kongu Engineering College, Department of EEE, Perundurai, Erode, India;

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9th International Conference on Advanced Computing and Communication Systems, ICACCS 2023; Coimbatore; India; 17 March 2023 through 18 March 2023; Category numberCFP23YAF-ART; Code 188417

Smart Attendance Monitoring System Using IoT(Conference Paper)

Ramani, G.,   Pradeepkumar, G.,   Palanisamy, P.N.,   Ashika Preethi, S.,   Sekhar, V.,   Kumar, N.S.

[a]Nandha Engineering College, Department of Electrical and Electronics Engineering, Erode, India
[b]KPR Institute of Engineering and Technology, Department of Electronics and Communication Engineering, Coimbatore, India
[c]Mahendra College of Engineering, Department of Electronics and Communication Engineering, Tamilnadu, Salem, India

View additional affiliations ⌄

Abstract

Currently, it is difficult to keep maintaining the student's attendance at a single university. This paper proposes an intelligent method for tracking student attendance to make keeping track of students' presence easier. It has largely replaced the traditional roll call procedure in businesses and educational institutions. By automatically marking attendance in the database, it reduces the amount of time staff spends manually entering attendance information. RFID tags and readers, a component of the Internet of Things, can be used to identify event attendees instead of time-consuming paper logs. They are simple to use for the average person. Unauthorized students would be barred from entering the school using this RFID-based access control system. © 2023 IEEE.

Author keywords

Arduino   Attendance Monitoring   IDE   IoT   IR Sensor   RFID

Indexed keywords

Engineering controlled terms:	Access control Internet of things Radio frequency identification (RFID)
Engineering uncontrolled terms	Arduino Attendance monitoring Educational institutions IDE Intelligent method IoT IR sensor Monitoring system RFID-tag Student attendances
Engineering main heading:	Students

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IoT based Energy Efficient Smart Metering System(Conference Paper)

Jamuna, P.,   Gowri Shankar, S.,   Bharathi, V.,   Loganayaki, A.,   Nandankar, P.,   Kumar, N.S.   👤

[a]Nandha Engineering College (Autonomous), Department of Electrical and Electronics Engineering, Erode, India
[b]Shree Venkateshwara Hi-Tech Engineering College, Department of Electrical and Electronics Engineering, India
[c]Kongunadu College of Engineering and Technology, Department of Electronics and Communication Engineering, Trichy, India

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Abstract

In this paper, a PIC16f877a microcontroller is used to build and run an IoT-enabled energy meter. The system architecture proposed eliminates the need for manual electrical maintenance. The Buyer is responsible for the cost of the electricity consumed. If the buyer does not pay on time, a remote server may turn off the power. Users can find out how much energy their device uses by going to a website and entering their device's IP address. When the energy meter is tampered with, the attached theft detection unit sends a signal to the corporate side via a GSM modem. This signal will be displayed on a corporate terminal. The Wi-Fi module handles the IoT task of transmitting energy meter readings via an IP address to a public website. A PIC16f877a microcontroller, a MAX232, an LCD display, a theft alarm, and an ESP8266 Wi-Fi module are all part of this hardware interface circuit. The Wi-Fi module handles the IoT task of transmitting energy meter readings via an IP address to a public website. © 2023 IEEE.

Author keywords

Energy Efficient   IoT   Node MCU   PIC Microcontroller   Smart Metering

Indexed keywords

Engineering controlled terms: Controllers   Crime   Electric measuring instruments   Energy efficiency   Internet of things   Internet protocols   Liquid crystal displays   Microcontrollers   Wi-Fi   Wireless local area networks (WLAN)

Engineering uncontrolled terms   Corporates   Energy efficient   Energy meters   IoT   Meter readings   Metering systems   Node MCU   PIC microcontrollers   Pic16f877a microcontrollers   Smart metering

Engineering main heading: Websites

Document details - Optimal cluster based feature selection for intrusion detection system in web and cloud computing environment using hybrid teacher learning optimization enables deep recurrent neural network

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Optimal cluster based feature selection for intrusion detection system in web and cloud computing environment using hybrid teacher learning optimization enables deep recurrent neural network(Article)

Maheswari, K.G., Siva, C., Nalinipriya, G.

aDepartment of Information Technology, Government College of Engineering, Erode, India
bDepartment of Information Technology, Nandha Engineering College, Erode, India
cDepartment of Information Technology, Saveetha Engineering College, Chennai, India

Abstract

Information technology organizations have experienced rapid growth in recent years, resulting in scalability, mobility, and flexibility challenges. Those organizations move their data to the cloud because security and privacy are major concerns. As cloud computing becomes more popular, security has become an important concern. These confidential data are vulnerable to attacks/malicious or intruders due to the characteristics of the cloud. In order to address the growing concern of real-time intruders, a variety of intrusion detection systems (IDS) used specifically for cloud environments with the aim of enhancing overall security. There are, however, some limitations and known attacks that can be overcome by those IDSs. We recently proposed a hybrid soft computing based IDS (ST-IDS) for web and cloud environments, but missed some novel web and cloud attacks. Using hybrid teacher learning enabled deep recurrent neural networks and cluster based feature optimization, we propose an IDS scheme for web and cloud computing environments. MMFO (modified manta-ray foraging optimization) is used after feature extraction to select optimal features for further detection. To classify the intrusion in the web-cloud environment, a hybrid teacher-learning enabled deep recurrent neural network (TL-DRNN) is introduced. Our proposed IDS scheme has been validated using benchmark datasets including DARPA LLS DDoS-1.0, CICIDS-2017, and CSIC-2010. The performance of our proposed IDS scheme has been compared to existing IDS schemes using various quality measures. © 2023 Elsevier B.V.

Author keywords

Classification   Feature optimization   Intrusion detection   Intrusion detection system   Web-cloud

Indexed keywords

Engineering controlled terms:

Classification (of information)   Cloud computing   Cluster computing   Computer crime   Deep neural networks   Feature extraction   Network security   Recurrent neural networks   Soft computing

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Document details - IoT based Food Spoilage Detection Monitoring using Blynk

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2023, Pages 1093-1098

9th International Conference on Advanced Computing and Communication Systems, ICACCS 2023; Coimbatore; India; 17 March 2023 through 18 March 2023; Category numberCFP23YAF-ART; Code 188417

IoT based Food Spoilage Detection Monitoring using Blynk(Conference Paper)

Sasikanth, S.,   Arun Kumar, V.,   Kumar, N.S.,   Pradeepkumar, G.   ⚲

[a]Vivekanandha College of Engineering for Women, Department of Electronics and Communication Engineering, Tiruchengode, India
[b]Nandha Engineering College, Department of Electrical and Electronics Engineering, Erode, India
[c]Saveetha School of Engineering, Department of Biomedical Engineering, Chennai, India

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Abstract

Smartphone and other high-tech devices are used so much these days that it's important to find simple answers to common problems. As a result, people are becoming increasingly reliant on various forms of cutting-edge technology to help those complete tasks in all aspects of their lives, from the home to the workplace. This paper discusses how the Internet of Things can be used to detect when food has gone bad. The proposed system relies heavily on detection and recognition techniques. The main goal of the algorithm is to find and tell the user about the smell of spoiled food. The NODEMCU microcontroller is used in this paper to investigate sensor- and code-driven technologies. The NODEMCU is the most important part of computer vision because it can be used for business and other good reasons. Second, whether technological advances are possible, as evidenced by extensive research. Scientists and researchers from a wide range of fields and institutions, including computer science and the food industry, place a high value on this field of study. The microcontroller panel can also turn on the sensor and read the inputs and outputs of the device. Refrigeration is frequently used to keep food fresh because it inhibits bacterial growth. Some items are intended for immediate use or cannot be stored for an extended period of time, and people must be aware of this. This article is mostly about how sensors can be used to keep food from going bad by constantly looking for signals that the food sends out and sending alerts to mobile phones that have already been set up. © 2023 IEEE.

Author keywords

(Blynk App) (Food Spoilage Detection) (IoT) (NODEMCU)

Indexed keywords

Engineering controlled terms: (Internet of things) (Spoilage)

Engineering uncontrolled terms   (Blynk app) (Cutting edge technology) (Food spoilage) (Food spoilage detection) (High-tech devices) (IoT) (NODEMCU) (Simple++) (Smart phones) (Technological advances)

Engineering main heading: (Microcontrollers)

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International Polymer Processing

Volume 38, Issue 1, 1 March 2023, Pages 88-96

Effect of stacking sequence on mechanical, water absorption, and biodegradable properties of novel hybrid composites for structural applications(Article)

Manickam, T.,   Iyyadurai, J.,   Jaganathan, M.,   Babuchellam, A.,   Mayakrishnan, M.,   Arockiasamy, F.S.   👤

[a]Department of Mechanical Engineering, KIT-Kalaignarkarunanidhi, Institute of Technology, Tamil Nadu, Coimbatore, India
[b]Department of Applied Mechanics, Seenu Atoll School, Hulhu-Medhoo, Addu City, 19060, Maldives
[c]Department of Mechanical Engineering, Nandha Engineering College, Vaikkaal Medu, Tamil Nadu, Erode, 638052, India

Abstract

This study used a hand layup process to create tri-layer hybrid composites composed of snake grass fiber (SGF) and jute fiber (JF). Two types of hybrid composites were investigated: jute/snake grass/jute (J/S/J) and snake grass/jute/snake grass (S/J/S). The fabricated composites were subjected to mechanical characterization and water absorption studies to verify their compatibility for various applications. The outcome revealed that the J/S/J hybrid sample shows the highest tensile and flexural strength at 68.46 and 78.62 MPa, respectively. This is due to stacking the maximum-strength JF as an exterior layer in the hybrid J/S/J sample. Meanwhile, the S/J/S composite shows a very high impact strength value of 4.45 kJ/mm2 due to the placement of SGF at the outermost layer. It leads to absorbing more impact energy at sudden load applications. Water absorption studies revealed that the S/J/S composite absorbed more moisture than the J/S/J composite. Furthermore, the S/J/S composite exhibited greater biodegradability than the J/S/J composite based on soil burial experiments. From this study, it can be concluded that the J/S/J composite is suitable for structural applications because it has higher tensile and flexural qualities. In contrast, the S/J/S composite can be employed under damping conditions because it has better impact strength. © 2022 Walter de Gruyter GmbH, Berlin/Boston.

Author keywords

(biodegradability) (hybrid composite) (jute fiber) (mechanical properties) (snake grass fiber) (water absorption studies)

Indexed keywords

Engineering controlled terms: (Hybrid composites) (Impact strength) (Jute fibers) (Water absorption)

Engineering uncontrolled terms   (Hand lay-up) (Hybrid composites) (Jute-composites) (Lay-up process) (Mechanical) (Property) (Snake grass fibers) (Stacking sequence) (Structural applications) (Water absorption study)

Engineering main heading: (Biodegradability)

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Mani, V. , Krishnaswamy, K. , Arockiasamy, F.S.

Mechanical and dielectric properties of Cissus Quadrangularis fiber-reinforced epoxy/TiB2 hybrid composites

(2023) International Polymer Processing

Armel, M. , Segovia, C. , Anny Géraldo, S.

Investigation of the performance of needle-punched nonwoven fabrics using Triumfetta cordifolia and thermoplastic fibers, compared to other commercial bast fibers used in preformed biosourced composites

(2023) Heliyon

Sharma, H. , Krishnakumar, B. , Dickens, T.J.

A bibliometric survey of research trends in vitrimer

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ANN-SOGI-based Shunt Active Power Filter for Harmonic Mitigation(Article)(Open Access)

Sujith, M., Vijayakumar, G., Pardeshi, D.B., Madhubalan, S., Arulanantham, D. ⚇

[a]Department of Electrical Engineering, Sanjivani College of Engineering, Maharashtra, Kopargaon, 423603, India
[b]Department of Electrical and Electronics Engineering, Sona College of Technology, Tamilnadu, Salem, 636005, India
[c]Department of Electronics and Communication Engineering, Nandha Engineering College, Tamilnadu, Erode, 638052, India

Abstract

In this paper introduces a PV based generation system interlinked with shunt active power filter (SAPF) to provide the effective reactive power compensation and mitigation of harmonics. The SAPF is comprised of a photovoltaic generation system, DC link capacitor and voltage source inverter (VSI). The current harmonics caused by nonlinear loads can be greatly reduced with the help of active power filter. To generate the reference current and the regulation of SAPF, the artificial neural network is proposed. The Second Order Generalized Integrator (SOGI) with Artificial Neural Network (ANN) controller is engaged to calculate the reference source current for SAPF. ANN additionally boasts great compatibility for digital implementation, control performance, and lightning-fast dynamic reaction. To demonstrate the effectiveness and superior concert of the proposed methodology, the designed controller is validated with the help of MATLAB simulations. © 2023 by the Sujith M, Vijayakumar G, Pardeshi D.B, Madhubalan S .

Author keywords

Artificial Neural Network | DC link capacitor | Shunt Active Power Filter | Voltage Source Inverter

⚇ Sujith, M.; Department of Electrical Engineering, Sanjivani College of Engineering, Maharashtra, Kopargaon, India;

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Deffaf, B. , Farid, H. , Benbouhenni, H.

Synergetic control for three-level voltage source inverter-based shunt active power filter to improve power quality

(2023) Energy Reports

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2nd International Conference on Computational Systems and Communication, ICCSC 2023; Thiruvananthapuram; India; 3 March 2023 through 4 March 2023; Category numberCFP2397Z-ART; Code 189246

Secure Multimodal Biometric System Based on Robust LSB-DWT Digital Watermarking Algorithm(Conference Paper)

Pradeep, K.,   Kavitha, S.,   Ayyannan, M.,   Selvam, N.,   Baskar, K.,   Kumar, N.S.

[a]KPR Institute of Engineering and Technology, Department of Electronics and Communication Engineering, Coimbatore, India
[b]Nandha Engineering College, Department of Electronics and Communication Engineering, Erode, India
[c]Sr. Software Engineering Manager AI/ML and Data Expert, San Francisco Bay Area, CA, United States

View additional affiliations ⌄

Abstract

In contemporary year, multimedia data is transmitted and accessed through Internet. Despite of its advantages, unauthorized copying, distribution and hacking of data has created security issues. So secure transmission and access of the biometric data has to be suggested. A single biometric identification is not preferable in most highly secured areas due to their parody attacks and ageing. These limitations can be overcome by deploying this system that incorporate information from multiple sources for personnel identification. In this project multiple sources are incorporated using Digital watermarking algorithm comprising both the spatial and frequency domain approach. Even though the digital watermarking scheme is highly secured, network hackers may easily trap the image and it's key. So to increase the security, encryption and decryption of watermarked image using RSA algorithm is employed at the transmission and the reception side respectively. So the cipher text image is alone transmitted in the network increasing the security of the multimodal data. The Stillness of this proposed scheme is measured by Quality Index (QI), Similarity of the original and the recovered images for various attacks and Peak Signal to Noise Ratio (PSNR). © 2023 IEEE.

Author keywords

Biometric identification   Digital watermarking algorithm   Multimodal Biometric systems   Peak Signal to Noise Ratio (PSNR)   Quality index (QI)   RSA algorithm

Indexed keywords

Engineering controlled terms:	Biometrics Cryptography Frequency domain analysis Network security Personal computing
Engineering uncontrolled terms	Biometric identifications Digital watermarking algorithm Multimodal biometric systems Multiple source Peak signal to noise ratio Quality index Quality indices RSA algorithms Watermarking algorithms
Engineering main heading:	Signal to noise ratio

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Journal of Intelligent and Fuzzy Systems

Volume 44, Issue 1, 2023, Pages 905-918

Design and implementation of a framework for blockchain based security using IoT(Article)

Sureshkumar, T., Sivaraj, R., Vijayakumar, M.

[a]Department of Information Technology, Nandha College of Technology, Erode Tamil Nadu, Perundurai, India
[b]Department of Computer Science Engineering, Nandha Engineering College, Erode Tamil Nadu, Perundurai, India
[c]Department of Computer Science Engineering, Sasurie College of Engineering, Tamil Nadu, Tirupur, India

Abstract

The Internet of Things (IoT) has altered the world in the last few years due to its capacity to impact almost every part of life. However, IoT raises concerns about data security and privacy because it collects data from devices via the cloud, increasing its vulnerability to hacking. IoT security is a serious issue that has delayed its widespread adoption. Several security and privacy solutions have been proposed for IoT contexts that meet prevalent security criteria such as authentication, integrity, and secrecy. However, due to resource restrictions and heterogeneous IoT devices, present solutions are unable to address the security requirements of the approaching large-scale IoT paradigm. Blockchain, well known for bitcoin and Ethereum, provides an intriguing approach for IoT security. The IoT and blockchain technologies may be combined and significant improvements in distributed systems have been made as a result of the widespread use of IoT technology. A novel framework with a unique design was proposed to improve security in bitcoin transaction by combining blockchain and SHA-256 hash algorithm. Additionally, the performance of proposed framework is compared with the state-of-the-art algorithms like MD5 and SHA1 in term of encryption time, power consumption, latency, speed and security. It is observed that the proposed framework takes 12 ms lesser latency than MD5 and consumes 2.7 Wh lesser power consumption than SHA1 and provides better security than both the techniques. © 2023 - IOS Press. All rights reserved.

Author keywords

bitcoin   Blockchain   IoT   privacy   security

Indexed keywords

Engineering controlled terms:
Blockchain   Data privacy   Electric power utilization   Hash functions   Network security   Personal computing

Engineering uncontrolled terms
Block-chain   Data security and privacy   Design and implementations   Privacy   Privacy solutions   Resource restrictions   Security   Security and privacy   Security criterion   Security solutions

Engineering main heading:
Internet of things

Cited by 1 document

Aljumah, A. , Ahanger, T.A.
Blockchain-Based Information Sharing Security for the Internet of Things
(2023) Mathematics
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Document details - Internet of Things (IoT) Feedback System using Raspberry Pi

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Proceedings - 7th International Conference on Computing Methodologies and Communication, ICCMC 2023

2023, Pages 1399-1404

7th International Conference on Computing Methodologies and Communication, ICCMC 2023; Erode; India; 23 February 2023 through 25 February 2023; Category numberCFP23K25-ART; Code 187717

Internet of Things (IoT) Feedback System using Raspberry Pi(Conference Paper)

Pradeepkumar, G.,   Ramraj, B.,   Ayyannan, M.,   Rohith Bhat, C.,   Kalavathi Devi, T.,   Kumar, N.S.

[a]Department of Electronics and Communication Engineering, KPR Institute of Engineering and Technology, Coimbatore, India
[b]Department of Electrical and Electronics Engineering, Nandha Engineering College, Erode, India
[c]San Francisco Bay Area, CA, United States

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Abstract

Constant monitoring and examination of customer input in modern businesses, public spaces, and institutional settings necessitates a significant investment in record-keeping equipment. This study includes a feedback mechanism to help with system documentation and maintenance. In the context of this work, "feedback" refers to the response of the surrounding environment to a specific activity. This study tracks the client reviews by physically rating them and then uploading the results to the cloud. Anyone with access can see how most of the comments were received. With this system in place, monitoring the status of each item of inputis a breeze. © 2023 IEEE.

Author keywords

(Feedback System) (IoT) (Raspberry Pi)

Indexed keywords

Engineering controlled terms: (Records management)

Engineering uncontrolled terms: (Customer input) (Feedback mechanisms) (Feedback systems) (Institutional setting) (Public space) (Raspberry pi) (Record keeping) (Specific activity) (Surrounding environment)

Engineering main heading: (Internet of things)

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An Optimal Cluster Based Intrusion Detection System for Defence Against Attack in Web and Cloud Computing Environments(Article)

Maheswari, K.G., Siva, C., Priya, G.N.   👤

[a]Department of Information Technology, Goverment college of Engineering, Erode, India
[b]Department of Information Technology, Nandha Engineering College, Erode, India
[c]Department of Information Technology, Saveetha Engineering College, Chennai, India

Abstract

In recent years, the rapid growth of information technology organizations causes ability to meet their demands such as scalability, mobility and flexibility. The security and privacy is a major issue of those organizations that's why they move the data to the cloud. Meanwhile, the security in cloud has become an important issue in the growing demand of cloud computing, Due to the nature characteristics of cloud, those confidential data are vulnerable to attacks/malicious or intruders. Several Intrusion Detection System (IDS) have been proposed for cloud environment to enhance the security problem but they are not possible to solve those issues with better accuracy, due to the recent real-time intruders. However, those IDSs are possible to solve and resist limited and known attacks. In this paper, we propose Optimal Cluster based Intrusion Detection System for defence against attacks in web and cloud computing environments (OC-IDS). We use hybrid optimization algorithm i.e. Multi-verse is combined with Chaotic Atom search optimization (MCA) algorithm for pre-processing which removes the unwanted/repeated data in dataset. We introduce a Chaotic Manta-ray Foraging Optimization (CMFO) based clustering technique which segment the data in different groups. Then, we develop hybrid machine learning technique i.e. Modified Teacher Learning based Deep Neural Network (MTL-DNN) which categorize the attack in cloud environment as a novelty of this study. Finally, the proposed OC-IDS technique can evaluate through standard open source datasets are KDD cup'99 and MSL-KDD, the performance of proposed and existing techniques are compared with different metrics such as accuracy, precision, recall and F-measure. Our proposed OC IDS MTL-DNN attains 95.01% accuracy in KDD cup'99 dataset. © 2022, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Author keywords

Chaotic Atom search optimization   Chaotic manta-ray foraging optimization   Cloud computing   Intrusion detection system   Modified teacher learning based deep neural network

Indexed keywords

Engineering controlled terms: Cluster computing   Computer crime   Deep neural networks   Intrusion detection   Learning systems   Network security

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Priya, S. , Ponmagal, R.S.

Real-Time Multi Fractal Trust Evaluation Model for Efficient Intrusion Detection in Cloud

(2023) Intelligent Automation and Soft Computing

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Investigation and validation of PV fed reduced switch asymmetric multilevel inverter using optimization based selective harmonic elimination technique

T. Jayakumar [a], G. Ramani [a], P. Jamuna [a], B. Ramraj [a], Gokul Chandrasekaran [b], C. Maheswari [c], Albert Alexander Stonier [d], Geno Peter [e] and Vivekananda Ganji [f]

[a]Department of Electrical and Electronics Engineering, Nandha Engineering College, Erode, India; [b]Department of Electrical and Electronics Engineering, Velalar College of Engineering and Technology, Erode, India; [c]Department of Mechatronics Engineering, Kongu Engineering College, Erode, India; [d]School of Electrical Engineering, Vellore Institute of Technology, Vellore, India; [e]CRISD, School of Engineering and Technology, University of Technology Sarawak, Sibu, Malaysia; [f]Department of Electrical and Computer Engineering, Debre Tabor University, Debre Tabor, Ethiopia

ABSTRACT

Pulse width modulation for Selective Harmonics Elimination (SHE) is mostly employed in the reduction of lower order harmonics. The PV system in this research provides input voltage to the reduced switch 31-level inverter, which is based on the Artificial Bee Colony algorithm. With a high gain DC-DC single-ended primary-inductor converter (SEPIC), the PV panel output voltage is kept constant. The Grey wolf optimization algorithm (GWO) approach is used to get the most power out PV scheme. Multi Carrier modulation, a high-frequency modulation technology, is also used in this novel design of the inverter to reduce upper order harmonics. The suggested Artificial Bee Colony (ABC) algorithm, harmonics is compared to a SHE technique based on a genetic algorithm. The hardware findings were confirmed using DSPIC30F2010 controller simulation, and the recommended system was validated using Matlab simulation.

1. Introduction

Solar powered stand-alone voltage source inverters have become increasingly popular in low- and medium-power claims in latest ages. Because of their power electronic circuitry, traditional inverters contain higher order harmonics. The life of electrical and electronic equipment is shortened because of harmonics. A multilevel inverter is used to address the harmonic difficulties [1]. The switching stress and switching loss of power semiconductor circuitry are reduced by using a multilevel inverter (MLI). PV (Photovoltaic) systems have become increasingly important in our daily lives in this century. However, in a PV system, higher order waves are present in the output voltage, as well as in the output power is varied due to natural temperature and irradiance variations. The MPPT method, along with a proper converter, overcomes these limitations. The output voltage of a multilevel inverter is generally regulated by sinusoidal PWM, however, switching losses and Total Harmonic Distortions are slightly higher in high-frequency modulation approaches. The adaptive selective Harmonics Elimination approach overcomes these disadvantages. Here are some existing works of literature that are discussed. The three primary types of multilevel inverters are diode clamped multilevel

inverters, capacitor type multilevel inverters, and cascaded H bridge inverters. The Cascaded H-Bridge Multilevel Inverter (CHBMLI) is widely utilized of these three types due to its little capacity, compact interchanging pressure and losses, capabilities, and high efficiency. CHBMLI is divided into two types: symmetrical MLI and asymmetrical MLI. In symmetrical MLI, the number of switches used is extremely high. In paper [1], author discussed about reduced switch symmetrical MLI with different values, this topology achieves output voltage with fewer shifts. But high-frequency variation increases the losses. In paper [2] author discussed about the multi-level inverter that reduces the harmonics level but it is suitable only for low-power applications. The numbers of DC voltage sources are reduced by switched capacitor MLI [3]. But here the capacitor induces a voltage stability problem. The high-frequency modulation drawbacks are overcome by selective harmonics elimination technique [4]. But this inverter is not suitable for nonlinear loads.

The input voltage from switched rectifier requires large amount of capacitor bank and also need EB supply. These drawbacks are overcome by [5], PV based cascaded MLI. But the control technique used in this paper is level shifted and phase shifted PWM techniques. The

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CONTACT Vivekananda Ganji ✉ vivekganji@dtu.edu.et 🖳 Department of Electrical and Computer Engineering, Debre Tabor University, Debre Tabor, Ethiopia

Document details - FPGA Implementation of High Speed 64-Bit Data Width True Random Number Generator using Clock Managers with Metastability

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5th IEEE International Conference on Electrical, Computer and Communication Technologies, ICECCT 2023; Velalar College of Engineering and TechnologyErode; India; 22 February 2023 through 24 February 2023; Category numberCFP2333R-ART; Code 190912

FPGA Implementation of High Speed 64-Bit Data Width True Random Number Generator using Clock Managers with Metastability(Conference Paper)

Marimuthu, C.N.,   Priyanka, B.

Nandha Engineering College, Department of ECE, Tamilnadu, Erode, India

Abstract

Currently, cybersecurity plays a crucial role in various fields to ensure secure data communication. True Random Number Generators (TRNGs) are crucial components for many critical security applications. While analog-based entropy sources are often used in digital-based solutions, there is a high demand for digital-based solutions, especially for Field Programmable Gate Array (FPGA)-based digital systems. A unique technique has been developed to simplify the design of TRNGs on FPGA devices. This technique utilizes the runtime capabilities of the hardware primitives provided by the Digital Clock Manager (DCM) to adjust the phase shift between two clock signals. An auto-tuning approach automatically adjusts the phase difference between the clock signals to force one or more flip-flops (FFs) to enter the metastability zone, which is used as a source of unpredictability in the system. Additionally, the fast carry-chain hardware primitive is uniquely used to further enhance the randomness of the generated bits. Lastly, a powerful on-chip post-processing strategy is employed to prevent any interference with the TRNG output. This work was implemented in verilog HDL, with 32 and 64 data width, and synthesized in Xilinx Zynq FPGA. The characteristics of the TRNG design were evaluated based on area, delay, and power consumption. © 2023 IEEE.

Author keywords

Direct Memory Access (DMA)   on-chip post processing   Shift Registers

Indexed keywords

Engineering controlled terms: Clocks   Field programmable gate arrays (FPGA)   Flip flop circuits   Integrated circuit design   Number theory   Random number generation

Engineering uncontrolled terms   Chip post-processing   Data width   Direct memory access   Field programmables   On chips   On-chip post processing   Programmable gate array   Random number generators   True randoms

Engineering main heading: Shift registers

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Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy

Volume 286, 5 February 2023, Article number 121985

Experimental and theoretical investigation of novel organic L-Glutaminium Benzenesulfonate single crystal – DFT and experimental approach(Article)

Arularasan, P.,   Sindhusha, S.,   Rajesh, K.,   Gunasekaran, B.,   Thayanithi, V.   👤

[a]Postgraduate Department of Physics, Dwaraka Doss Goverdhan Doss Vaishnav College, Tamil Nadu, Chennai, 600 106, India
[b]Department of Physics, Nesamony Memorial Christian College, Tamil Nadu, Marthandam, 629165, India
[c]Department of Physics, Academy of Maritime Education and Training (AMET), Chennai, India

View additional affiliations ⌄

Abstract

An organic nonlinear optical crystal of L-Glutaminium Benzenesulfonate (LGBS) crystal was grown by slow evaporation method. Crystallization parameters and structural analysis of LGBS crystal were notified by Single crystal XRD technique and the theoretical structural parameters were also identified and compared using DFT. The grown LGBS crystal crystallizes in monoclinic crystal system with the non-centrosymmetric space group P2$_1$. The presence of chemical bonding and functional groups were examined using FTIR and FT Raman spectra and their theoretical assignments were calculated. The lower cutoff wavelength was determined for grown LGBS crystal by UV–visible spectroscopy and it confirms that grown LGBS crystal has wide transmittance in the visible region. The emission region for the grown LGBS crystal was analysed by fluorescence spectrum. The global reactive descriptors and the intermolecular charge transfer interactions were also interpreted. The liberation of organic molecule and melting temperature of LGBS crystal were elucidated by thermo gravimetric analysis (TG) and DSC. The Kurtz and Perry powder technique confirms the formed LGBS crystal exhibits the second harmonic generation (SHG) and its outputs were compared with standard KDP. © 2022 Elsevier B.V.

Author keywords

DFT   HOMO LUMO   L-Glutaminium Benzenesulfonate   NBO   Second harmonic generation   Structural analysis

Indexed keywords

Engineering controlled terms:	Charge transfer Chemical bonds Fourier transform infrared spectroscopy Nonlinear optics Single crystals Spectrum analysis Structural analysis Thermogravimetric analysis
Engineering uncontrolled terms	Benzenesulfonates DFT Experimental approaches Experimental investigations Homo-lumo L-glutaminium benzenesulphonate NBO Organic nonlinear optical crystals Organics Theoretical investigations
Engineering main heading:	Harmonic generation

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Liu, L. , Li, L. , Guo, C.

The Design of a Biomimetic Hierarchical Thin-Walled Structure Inspired by a Lotus Leaf and Its Mechanical Performance Analysis

(2023) Materials

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Intelligent Control system for BLDC Motor Driven Solar Water Pumping System using Wode Algorithm(Conference Paper)

Saravanan, A.,   Rekha, M.,   Subha, S.T.,   Arulanantham, D.,   Baskaran, S.,   Gomathi, S.   👤

[a]Smk Fomra Institute of Technology, Chennai, India
[b]R.M.K Engineering College, Chennai, India
[c]Veltech Multitech Dr.Rangarajan Dr.Sakunthala Engineering College, Chennai, India

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Abstract

Solar photovoltaic (SPV) panels-based water pumping system is proposed in this article. There is one global maximum power point on the power-voltage (P-V) curve of the SPV array, and there are also several local maximum power points (MPPs). In this article, the WODE search algorithm is used in the context of maximum power point tracking (MPPT) for photovoltaic (PV) systems. When compared to other approaches, the WODE search has a few benefits, such as its fast convergence and the small number of highly effective parameter tuning steps. These benefits originate from the search's ability to identify superior options. In a nutshell, the WODE method allows for rapid and consistent tracking of the peak's location, where the most potential exists. Unlike other evolutionary approaches, the output of this algorithm for Maximum Power Point Tracking (MPPT) under partial shading is a positive Luo converter, which eliminates power loss and oscillations due to factors like a larger number of search particles, steady state oscillation, a heavy computational burden, and so on. The Luo converter is a type of converter with high gain and low component count. The outcomes prove that WODE can track MPP in a variety of settings with less power loss and quicker convergence than other approaches. © 2023 IEEE.

Author keywords

(BLDC Motor Controller) (E Bike) (Electric Motor) (Throttle Sensors)

Indexed keywords

Engineering controlled terms:
(AC motors) (Electric machine control) (Evolutionary algorithms) (Maximum power point trackers) (Pumping plants) (Pumps) (Solar panels) (Solar power generation)

Engineering uncontrolled terms
(BLDC motor controller) (BLDC motors) (E bike) (Luo converters) (Maximum power point) (Maximum Power Point Tracking) (Motor controllers) (Powerloss) (Throttle sensor) (Water pumping systems)

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Document details - Removal of 2,4-dichlorophenol using ionic liquid [BMIM]⁺[PF₆]⁻ encapsulated PVDF membrane

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Journal of the Indian Chemical Society

Volume 100, Issue 1, January 2023, Article number 100781

Removal of 2,4-dichlorophenol using ionic liquid [BMIM]$^+$[PF$_6$]$^-$ encapsulated PVDF membrane(Article)(Open Access)

Pandiarajan, S.,   Venkatesan, S.   👤

[a]Department of Chemical Engineering, Nandha Engineering College, Tamilnadu, Erode, India
[b]Department of Petrochemical Technology, University College of Engineering, BIT Campus, Tiruchirappalli, India

Abstract

2,4-Dichlorophenol (2,4-DCP) is one of the toxic chlorophenol compounds found in aquatic environments. Chlorophenols are priority pollutants, due to their high toxicity, mutagenicity and carcinogenicity. In this study, experiments were carried out for the removal of 2,4-Dichlorophenol (Cl$_2$C$_6$H$_3$OH) from aqueous solution using commercial grade PVDF membrane immobilised with 1-Butyl-3-methyl imidazolium hexafluorophosphate [BMIM]$^+$[PF6]$^-$ ionic liquid. Scanning Electron Microscopy (SEM) and Fourier Transform Infrared Spectroscopy (FT-IR) used to identify and to confirm the surface morphology, functional groups and operational stability of Ionic Liquid [BMIM]$^+$[PF$_6$]$^-$ encapsulated PVDF membrane. The effect of various factors such as feed phase pH, initial 2,4-DCP concentration, operation time and stirring speed along with different stripping agents such as NaOH, KOH and NH$_4$OH on the removal of chlorophenols has been investigated. The maximum permeation rate of 85.52% was achieved over an experimental run of 24 at pH 4 with a strip flux of 8.18323×10^{-09} mol m^{-2}s^{-1} in 0.1 M NaOH strip phase. © 2022 Indian Chemical Society

Author keywords

Chlorophenol removal   Ionic liquid   Supported liquid membrane   Wastewater treatment

Indexed keywords

EMTREE drug terms:	1 butyl 3 methylimidazolium hexafluorophosphate 2,4 dichlorophenol ammonia functional group ionic liquid sodium hydroxide

EMTREE medical terms:	analytic method aqueous solution Article controlled study Fourier transform infrared spectroscopy liquid membrane maximum concentration operation duration pH scanning electron microscopy surface property velocity waste water management

Chemicals and CAS Registry Numbers:

2,4 dichlorophenol, 120-83-2; ammonia, 14798-03-9, 51847-23-5, 7664-41-7; sodium hydroxide, 1310-73-2

Funding details

Funding text

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Erdoğan, D. , Hasanoğlu, A.
Recovery of Biobutanol from Aqueous Streams by Pervaporation Using Ionic Liquid Based Membranes

(2023) Biomass Conversion and Biorefinery

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Synthesis, Characterizations of Macro, Micro, Irradiated Crystals of KDP, the Standard Non-linear Optical Reference Material for Mechano, Photonic, Electronic Uses

(📘 Article in press ❓)

Vanitha, A., Jayanalina, T., Reema, K., Renuka, P., Sindhu, K.V., Guru Prasath, M., Arokkiya Vincy, G., Sasikumar, P., Vimalan, M., SenthilKannan, K. 👤

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Abstract

The KDP-Potassium Dihydrogen Phosphate crystal is properly grown is confirmed by the single crystal XRD, which is further conceded for Co-60 irradiation with 100 Gy and converted to micro level by the process of milling. The KDP belongs to tetragonal crystalline system as per macro-scale reference and for micro-scale, the pure/bulk is milled for twenty hours for converting into micro-level and it is identified by the morphological pattern. The hardness profile of the KDP pure, micro (KDP-μ), 100 Gy macro (GKDP) are analyzed for the Vicker's micro-hardness studies and identified the RISE impact as reverse indentation size effect. The micro-KDP morphology of 10 μm represents some proper isolated islands with void space. NLO-SHG of KDP micro and KDP 100 Gy are analyzed and found that pure KDP is 70 mV as the output for KDP as reference, KDP-micro is 71 mV and KDP-100 Gy is 73 mV; employed for phase matching proviso. The electronic filtering of KDP pure, micro, 100 Gy are pronounced in micron as variant influx for opto-electronic portrayal. The frequency doubling of the KDP pure, KDP micro, KDP 100 Gy is twice for normal case, 2.01, 2.07, and 2.15 for all the KDP. The powder diffraction pattern of the KDP confirms the grown KDP crystal samples; the display nature of the devices by KDP is identified for (111) profile. The electronic transition is by UV–visible spectrum for pure, micro and 100 Gy categories and identified the band gap as 6.1386 eV, 6.1084 eV and 6.0784 eV for the KDP-pure, KDP micro and 100 Gy and cut-off is pronounced as 202 nm, 203 nm and 204 nm, correspondingly. All the three samples are of highly transparent; the fluorescence effect of all samples are in the green color. The dielectric behavior of GKDP sample is analyzed and all the polarizations are referred through properly; the higher order value of super cell impacting of $3 \times 3 \times 3$ case of KDP and the nano-tubular of 25 nm are well portrayed. © 2023, The Tunisian Chemical Society and Springer Nature Switzerland AG.

Author keywords

Display-devices   Electrical   Electronics   GKDP   Photonics

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2023 International Conference on Computer Communication and Informatics, ICCCI 2023; Coimbatore; India; 23 January 2023 through 25 January 2023; Category numberCFP2308R-ART; Code 188967

Healing and Preventing Trees from Beetles Usingpesticides(Conference Paper)

Pradeepkumar, G.,   Prabu, M.,   Ayyannan, M.,   Pratheep, V.G.,   Revathi, S.,   Kumar, N.S.   ⚇

aKPR Institute of Engineering and Technology, Department of Electronics and Communication Engineering, Coimbatore, India
bNandha Engineering College, Department of Electrical and Electronics Engineering, Erode, India
cSoftware Engineering at Walmart Inc., CA, United States

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Abstract

The Indian way of life is extremely dependent on wildlife. Trees and their impact on products are critical to the economy and societal advancement. These trees are also impacted by species such as beetles during their growing season. Take, for example, banana trees, which are susceptible to beetle infestation. This banana tree is vulnerable to beetle infestation at any time during its life. It is most common during childhood. This can be harmful to the tree's health and shorten its life span in comparison to the average. Pesticides for killing beetles are available on the market, but they must be applied manually to the affected area each time. Some farmers may fail due to the difficulty of repeatedly climbing to apply pesticide to a specific infected area; this method must be used for a specific period of time. Furthermore, pesticides differ depending on the type of beetle, making it difficult for the farmer to select the appropriate pesticide for the correct beetle. Cosmopolites sordidus is a 12 mm long insect that feeds on banana trees. As a result, a syringe-like structured beetle killer was created. The syringe can be loaded with any pesticide and then injected into the affected tree. Another goal is to reduce manpower and 24/7 monitoring. © 2023 IEEE.

Author keywords

24/7 monitoring   Agriculture   Attacks the growing period   Banana tree   Cosmopolites sordidus beetle   Pesticides

Indexed keywords

Engineering controlled terms: Fruits   Syringes

Engineering uncontrolled terms   24/7 monitoring   Affected area   Attack the growing period   Banana trees   Beetle infestation   Cosmopolite sordidu beetle   Growing season   Lifespans   Tree health

Engineering main heading: Pesticides

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Self-Adaptive Hybridized Lion Optimization Algorithm with Transfer Learning for Ancient Tamil Character Recognition in Stone Inscriptions

(📄 Article in press ❔)

(Open Access)

Devi Priya, R.,   Karthikeyan, S.,   Indra, J.,   Kirubashankar, S.,   Abraham, A.,   Gabralla, L.A.,   Sivaraj, R.,
Nandhagopal, S.M.

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[b]Machine Intelligence Research Labs, USA & Flame University, Pune, India
[c]Princess Nourah Bint Abdulrahman University, Saudi Arabia

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Abstract

Tamil character recognition is an important field of research in pattern recognition and it is a technical challenge than other languages due to similarity and complexity of characters. Stone inscriptions reveal the details of lavishness, lifestyle, economic conditions, culture, and also of the managerial regulations followed by various rulers and dynasties particular to those regions. However, due to the long history of ancient stone inscription, natural erosion and lack of early protection measures, there are lot of noise in the existing ancient stone inscriptions, which create adverse effects on reading these stone inscriptions and their aesthetic appreciation. The research challenge in recognizing Tamil characters is mainly because of the characters with a number of holes, loops and curves. The number of letters in Tamil language is higher when compared to other languages. Even though there are various approaches provided by the researchers, challenges and issues still prevail in recognition of tamil text in stone inscriptions. In the existing systems, detection algorithms fail to produce desired accuracy and hence stone inscription recognition using transfer learning, a promising method is proposed in this paper. Lion Optimization Algorithm (LOA) is applied to optimize brightness and contrast and then stone inscription images are pre-processed for noise removal and then each character is separated by identifying contours. Characters are recognized using Transfer Learning (TL), a Deep Convolution Neural Network-based multi classification approach. The proposed hybrid model Self-Adaptive Lion Optimization Algorithm with Transfer Learning (SLOA-TL) when implemented in images of stone inscriptions achieves better accuracy and speed than other existing methods. It serves as an efficient design for recognition of tamil characters in stone inscriptions and preserving tamil traditional knowledge. Author

Author keywords

Character recognition   Classification algorithms   Convolutional neural networks   Feature extraction
Lion Optimization Algorithm   Optical character recognition   Optimization   preprocessing   stone inscription
tamil character recognition   Transfer learning   transfer learning

Indexed keywords

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Design and Development of Surface Plasmon Polariton Resonance Four-Element Triple-Band Multi-Input Multioutput Systems for LTE/5G Applications

(⊞ Article in press ❓)

Saikumar, K., Arulanantham, D., Rajalakshmi, R., Prabu, R.T., Kumar, P.S., Vani, K.S., Ahammad, S.H., Eid, M.M.A., Rashed, A.N.Z., Hossain, M.A., Pal, A. 👤 👤 👤

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View additional affiliations ⌄

Abstract

Four-element triple-band systems have been studied and developed for long-term evolution (LTE) and 5G mid-band (4.5–4.9 GHz) operation. The presented multi-input multioutput (MIMO) consists of four planar which are excited with inset feeding. The system is designed on substrate (FR-4) with dielectric constant (ε_r) of 4.4 and dielectric loss (tan δ) 00.02. The complete measurements of implemented antenna are $150 \times 150 \times 1.6$ mm^3. This article provides a triple band to operate under LTE bands, such as 02.4 GHz, 03.7 GHz, and 04.5 GHz for $|S_{11}| \leq -10$ dB. This antenna is operating for LTE band 40 (2300–2400 MHz) at 2.4 GHz with impedance bandwidth of 58.6 MHz, LTEA band 46 (3700–4000 MHz) at 3.7 GHz with operating bandwidth of 87.1 MHz and 5G mid-band range for Japan (4500–4900 MHz) at 4.5 GHz with operating bandwidth 87.1 MHz. This MIMO provides > 21 dB isolation among the 4 elements operating under the operating band. Therefore, the antenna is appropriate for LTE/5G operations. © 2023, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Author keywords

5G   Envelope correlation coefficient (ECC)   Isolation   LTE   Multiband

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Journal of Intelligent and Fuzzy Systems
Volume 44, Issue 2, 2023, Pages 1807-1821

Design and development of solar photovoltaic fed modular multilevel inverter using intelligent techniques for renewable energy applications(Article)

Thangavel, J.,   Chinnaraj, G.,   Chandrasekaran, G.,   Kumarasamy, V.   ⍟

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[b]Department of Electrical and Electronics Engineering, Amet Deemed to Be University, Tamil Nadu, Chennai, India
[c]Department of Electrical and Electronics Engineering, Velalar College of Engineering and Technology, Tamil Nadu, Erode, India

Abstract

This paper presents the design and development of Modular Multilevel Inverter (MMI) to reduce Total harmonic distortion (THD) using intelligent techniques towards marine applications. Many researchers have described the additional advantage of inverter control challenges such as voltage imbalance, increasing the number of voltage levels, power quality issues, reducing the number of semiconductors switches and achieving higher efficiency. Under the intelligent techniques, the implementation is carried out with aid of Artificial Neural Networks (ANN), Fuzzy Logic Controller (FLC) and Adaptive Neuro-Fuzzy Inference System (ANFIS) to calculate the modulation index (ma) and switching angles (θ) for MMI. Based on the calculation, it is trained to form a mapping between inputs and outputs for obtaining reduced Total Harmonics Distortion (THD). The objective of the intelligent controller is to control the inverter for regulating the output voltage with lowest THD. The proposed control structure has been estimated and compared for better robustness in terms of switching angle and modulation index with least THD in the inverter. Simulations and prototype models are made to analyze the controller's performance, for inverter output voltage and harmonics. This proposed system is designed for marine lighting load application. The FPGA performance with all intelligent methods are analyzed by in SPARTAN3E500 FPGA device. ©
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Author keywords

Adaptive Neuro-Fuzzy Inference System (ANFIS)   Artificial Neural Networks (ANN)   Fuzzy Logic Controller (FLC)
Modular Multilevel Inverter (MMI)   Total Harmonics Distortion (THD)

Indexed keywords

Engineering controlled terms: Adaptive control systems   Computer circuits   Controllers   Electric inverters
Field programmable gate arrays (FPGA)   Fuzzy inference   Fuzzy neural networks   Fuzzy systems
Harmonic analysis   Integrated circuit design   Marine applications   Quality control
Solar power generation

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Kumarasamy, V. , KarumanchettyThottam Ramasamy, V. , Chandrasekaran, G.
A review of integer order PID and fractional order PID controllers using optimization techniques for speed control of brushless DC motor drive

(2023) International Journal of System Assurance Engineering and Management

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Design and fabrication of electric three-wheeled scooter for disabled persons(Article)

Magibalan, S.,   Ragu, C.,   Nithish, D.,   Raveeshankar, C.,   Sabarish, V.

Nandha Engineering College, Autonomous, Tamil Nadu, Erode, 638052, India

Abstract

This article focuses on offering a possible design and manufacturing in the shape of a user-friendly-three-wheeled scooter, which lets in bodily challenged or persons with partial incapacity to move and do their activities without anyone's assistance. The problems were observed through a survey conducted to understand their needs, particularly dimensions. Major problems such as seat height and floor clearance were taken into consideration to increase the standards and its selection. From the survey, it was found that our electric three-wheeled scooter should have high range and be comfortable during travel. It should also be affordable. Then, the accurate design of the proposed model was finalized using Solidworks. We used a hub motor, battery, and control system that can give a range of 45 km/h and have load-carrying capacity of 100 kg. The designed scooter is ergonomically suited for disabled persons in comparison to the conventional scooters used by them. © 2023

Author keywords

(Battery) (Control system) (Electric three wheeler) (Motor)

Indexed keywords

Engineering controlled terms:	(Disabled persons) (Electric batteries) (Surveys)
Engineering uncontrolled terms	(Accurate design) (Battery) (Disabled (persons)) (Electric three wheeler) (High ranges) (Hub motors) (Seat heights) (SolidWorks) (User friendly)
Engineering main heading:	(Control systems)

Magibalan, S.; Nandha Engineering College, Autonomous, Tamil Nadu, Erode, India;

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Moreno-Suarez, L.E. , Morales-Velazquez, L. , Jaen-Cuellar, A.Y.

Hardware-in-the-Loop Scheme of Linear Controllers Tuned through Genetic Algorithms for BLDC Motor Used in Electric Scooter under Variable Operation Conditions

(2023) Machines

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Proceedings of the International Conference on Artificial Intelligence and Knowledge Discovery in Concurrent Engineering, ICECONF 2023

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2023 International Conference on Artificial Intelligence and Knowledge Discovery in Concurrent Engineering, ICECONF 2023; St. Joseph�s Institute of TechnologyAudio Visual Hall-1 Administrative BlockChennai; India; 5 January 2023 through 7 January 2023; Category numberCFP23DJ4-PRT; Code 187721

Maximum Energy Productivity for Concurrent Wireless Data and Power Shifting-Enabled IoT Network with Energy Coordination(Conference Paper)

Joseph, S.,   Sankar, R.,   Royappa, A.,   Anandakumar, D.,   Gururaj, D.,   Karthikeyan, K.V.

[a]Department of Electronics and Communication Engineering, R.M.K. Engineering College, Chennai, India
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Abstract

The online phase may be successfully extended by simultaneous wireless data, internet of things (IoT) components, and sophisticated technologies. The development support base station is developed to accomplish the exchange of renewable electricity to manage the volatility of power generation by the hybrid access points. In this research, we jointly investigate the cooperative SWIPT-enabled IoT systems. While maximizing the program's energy consumption, we must also adhere to maximize the transmission limits, thermoelectric generator restrictions, and customer quality of service (QoS) requirements. We collaborate to find solutions to the challenges of power-sharing, period shifting, and ecological collaboration. The incessant algorithm is employed to address the load distribution and duration swapping problems, the matching algorithm is employed to fix the cooperation agreement issue, and since this trouble is a nonlinear optimization issue, it is challenging to address directly. Instead, we are using the interchanging differential technique. The outcomes of the simulations demonstrate that the suggested algorithm performs with a considerable advantage in terms of energy conservation compared to the comparative method. Also, it has been shown that using energy collaboration technologies can reduce the amount of power a system uses and make it run better. © 2023 IEEE.

Author keywords

energy collaboration   energy consumption   IoT   power collaboration   SWIPT   time changing   transmission power

Indexed keywords

Engineering controlled terms: Electric loads   Electric power transmission   Internet of things   Nonlinear programming   Power quality   Quality of service   Thermoelectric equipment

Engineering uncontrolled terms: Energy   Energy collaboration   Energy productivity   Energy-consumption   Power   Power collaboration   SWIPT   Time changing   Transmission power   Wireless data

Engineering main heading: Energy utilization

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Volume 2466, Issue 1, 2023, Article number 012033

4th National Conference on Communication Systems, NCOCS 2022; Karaikal; India; 23 December 2022 through ; Code 187996

Classification of WBC cell classification using fully connected convolution neural network(Conference Paper)(Open Access)

Gokul Kannan, K.,   Ganesh Babu, T.R.,   Praveena, R.,   Sukumar, P.,   Sudha, G.,   Birunda, M.

[a]Electronics and Communication Engineering, Loyola Institute of Technology, Chennai, India
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Abstract

White blood cells (WBCs) are cells that is key factor of the immune systems which is help to our body fight off contagions and other diseases. In order to enhance the diagnosis of various diseases in medical field by using image processing techniques from the blood cells. In that, Leukemia is associated with one type of cancer of the blood and bone marrow. It is look like spongy tissue inside the bones where blood cells are made. In this paper, a fully connected. Convolution neural network is used to segmented and classification of blood cell microscope WBC images for healthy and unhealthy conditions. The performance of the classifier was analyzed. The accuracy sensitivity specificity and pression are 96.84%, 96.26%,97.35% and 96.39% respectively. © Published under licence by IOP Publishing Ltd.

Author keywords

Basophil   Eosinophil   FCNN   Leukemia   Lymphocyte   Neutrophils

Indexed keywords

Engineering controlled terms:	Blood Bone Cells Convolution Cytology Diagnosis Image enhancement Medical imaging

Engineering uncontrolled terms	Basophil Blood cells Cell-be Cell/B.E Convolution neural network Eosinophile FCNN Leukemia Neutrophile White blood cells

Engineering main heading:	Diseases

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4th National Conference on Communication Systems, NCOCS 2022; Karaikal; India; 23 December 2022 through ; Code 187996

Prediction of Rainfall Analysis Using Logistic Regression and Support Vector Machine(Conference Paper)(Open Access)

Praveena, R.,   Babu, T.R.G.,   Birunda, M.,   Sudha, G.,   Sukumar, P.,   Gnanasoundharam, J.

[a]Electronics and Communication Engineering, Muthayammal Engineering College, Namakkal, India
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Abstract

Rainfall prediction has a major effect on human civilization and is one of the most difficult, unpredictable activities. Precise and accurate predictions will help to rising human and financial risks pro-actively. This work presents a current supervised learning models of machine learning to focused on the Rainfall Prediction. Rainfall is also a significant issue in the planet because it impacts any single aspects that relies on the human being. Unpredictable and reliable estimation of rainfall is a challenging job today. In this work, gives a maximum outcome and a stronger forecast for rainfall using logistic regression and support Vector Machine (SVM) classifier for better prediction. © Published under licence by IOP Publishing Ltd.

Indexed keywords

Engineering controlled terms:	Forecasting Regression analysis Support vector machines

Engineering uncontrolled terms: Accurate prediction   Financial risks   Human civilization   Human risks   Logistic support   Logistics regressions   Rainfall analysis   Rainfall prediction   Regression vectors   Support vectors machine

Engineering main heading: Rain

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Expert Systems with Applications

Volume 209, 15 December 2022, Article number 118286

Tri-staged feature selection in multi-class heterogeneous datasets using memetic algorithm and cuckoo search optimization(Article)

Devi Priya, R.,   Sivaraj, R.,   Anitha, N.,   Devisurya, V.   ⚲

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Abstract

Classification algorithms and their preprocessing operations usually performs on feature selection on homogeneous or heterogeneous attributes, binary or multi-class labels separately. Only very few methods attempt to perform feature selection on datasets with heterogeneous multi-class attributes. In order to bridge this gap with better classification performance, the paper proposes a Tri-staged Feature Selection (TFS) methodology which performs (i) Feature selection using Kruskal Wallis test (ii) Refinement of feature selection using a new Memetic Algorithm with local beam search and genetic algorithm operations and (iii) Further refinement of feature selection using Cuckoo Search algorithm. Proper tradeoff between both exploration and exploitation is maintained in the proposed method. The experimental results on 12 datasets show that the proposed method is better than that of state-of-the-art methods used for feature selection in terms of multi-class accuracy, hamming loss, ranking loss, normalized coverage and convergence rate for multi-class heterogeneous datasets. © 2022 Elsevier Ltd

Author keywords

Cuckoo search   Heterogeneous datasets   Kruskal Wallis test   Local beam search   Memetic algorithm

Indexed keywords

Engineering controlled terms:	Classification (of information) Genetic algorithms
Engineering uncontrolled terms	Beam search Classification algorithm Cuckoo searches Features selection Heterogeneous datasets Kruskal-Wallis tests Local beam search Memetic algorithms Pre-processing operations Search optimization
Engineering main heading:	Feature Selection

⚲ Devi Priya, R.; Department of Artificial Intelligence and Data Science, KPR Institute of Engineering and Technology, Coimbatore, India

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Wang, X. , Liu, Q. , Zhang, L.
An Adaptive Sand Cat Swarm Algorithm Based on Cauchy Mutation and Optimal Neighborhood Disturbance Strategy
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Thangapalani, L. , Dharini, R. , Keerthana, R.
Securing Medical Image Transmission using Memetic Algorithm
(2023) Proceedings of the 2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023

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1st IEEE International Conference on Automation, Computing and Renewable Systems, ICACRS 2022; Mount Zion College of Engineering and Technology (MZCET)Pudukkottai; India; 13 December 2022 through 15 December 2022; Category numberCFP22CB5-ART; Code 186576

Real-Time Sidewalk Crack Identification and Classification based on Convolutional Neural Network using Thermal Images(Conference Paper)

Karthikeyan, G.,   Dhaarani, T.G.,   Anusuya, R.,   Kalyan Kumar, G.,   Joel, T.,   Prabu, R.T.

[a]Department of Electrical and Electronics Engineering, Sona College of Technology, Salem, India
[b]Department of Electronics and Communication Engineering, Nandha Engineering College, Erode, India
[c]Department of Computer Science and Engineering, Modern Institute of Technology and Research Centre, Rajasthan, Alwar, India

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Abstract

The most common causes of pavement degradation include incorrect road construction and maintenance, overburden, inadequate road surface drainage, seepage, especially difficult environmental conditions like frost. Highway distresses raise fuel expenses, raise travel times, and have a negative impact on road safety. They also slow down traffic flow. The implementation of a lightweight classification algorithm for the identification of complex paving circumstances using RGB-thermal input and also an attention component embedded to modify the spatial as well as characteristics of the data of the images is recommended using a convolutional neural network based on a revised residual framework. With an attention mechanism as well as the RGB-thermal as input, the suggested model's better predictive accuracy is 98.88 percent. The proposed technique improves the picture's level of clarity and controls how picture streams are used, which improves the model's actual quality. Additionally, it is contrasted to cutting-edge deep learning techniques, showing that our approach outperforms other picture categorization models in terms of character recognition, training time, and parameter count. In order to compare the information, the system learns from of the photos under various input information, a visualization approach combining GWM is provided. © 2022 IEEE

Author keywords

attention mechanism   deep learning   Fault categorization   hierarchical residual awareness system   visually interpretation

Indexed keywords

Engineering controlled terms: Character recognition   Convolution   Deep learning   Learning systems   Motor transportation   Pavements   Traffic control   Travel time

Engineering uncontrolled terms: Attention mechanisms   Awareness systems   Convolutional neural network   Crack classification   Crack identification   Deep learning   Fault categorization   Hierarchical residual awareness system   Real- time   Visually interpretation

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Revista Materia

Volume 27, Issue 2, 2022, Article number e13188

Utilization of industrial waste materials in concrete-filled steel tubular columns(Article)(Open Access)

Mohanraj, E.K.,   Malathy, R.,   Ravisankar, K.L.   👤

[a]Department of Civil Engineering, Nandha Engineering College, Erode, Tamilnadu, Perundurai, 638052, India
[b]Department of Civil Engineering, Sona College of Technology, Tamilnadu, Salem, 636 005, India

Abstract

The idea of this particular study is to utilize industrial waste materials in an effective manner so as to give strength to steel tubular columns. Composite construction using steel-concrete has emerged as one of the fastest methods of construction in India. The inherent advantage of the steel-concrete composite section lies in that the two principal elements-the steel and the concrete are normally used in a manner so that full potential of both may be realized and the best utilization of their respective properties can be made. In this paper, an attempt was made with steel tubular columns in-filled with plain concrete, partial replacement of fine aggregate by fly ash & quarry dust and coarse aggregate by rubber, slag from the steel industry, granite and construction & demolition (C&D) debris concrete. The column specimens are to be tested under axial compression to investigate the effects of industrial waste materials. The effects of the steel tube and the strength of concrete are examined. 24 specimens were tested with the strength of concrete as 20 MPa and D/t ratio 25.40. The columns were 114.3 mm in diameter and 4.5 mm in thickness are 300, 600 & 900 mm in length. Strength characteristics and failure modes are to be discussed. The test results are to be compared with the values predicted by Eurocode 4, Australian Standards and American Codes and new theoretical models will be suggested for the design. From the test results, it was observed that the load-carrying capacity of steel tubular columns in-filled with various industrial waste materials concrete is greater than the conventional concrete. Hence this research would give a solution for effective utilization of industrial waste materials such as rubber, granite, C&D debris, steel slag, fly ash and quarry dust in concrete. © 2022, Universidade Federal do Rio de Janeiro. All rights reserved.

Author keywords

Fly Ash   Quarry Dust   Rubber   Steel Slag   Steel Tubular Sections

Funding details

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International Conference on Automation, Computing and Renewable Systems, ICACRS 2022 - Proceedings

2022, Pages 370-375

1st IEEE International Conference on Automation, Computing and Renewable Systems, ICACRS 2022; Mount Zion College of Engineering and Technology (MZCET)Pudukkottai; India; 13 December 2022 through 15 December 2022; Category numberCFP22CB5-ART; Code 186576

Modified Aquila Optimization based Route Planning Model for Unmanned Aerial Vehicles Networks(Conference Paper)

Chaudhari, S.V.,   Dhipa, M.,   Ayoub, S.,   Gayathri, B.,   Siva, M.,   Banupriya, V.

[a]Department of Electronic and Computer Engineering, Sanjivani College of Engineering, Kopargaon, Maharashtra, Ahmednagar, India
[b]Department of Biomedical Engineering, Nandha Engineering College, Perundurai Main Road, Erode, India
[c]Shri Venkateshwara University, NH-24, Venkateshwara Nagar, Rajabpur Gajraula, Dist, Uttar Pradesh, Amroha, India

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Abstract

Unmanned aerial vehicles (UAVs) are deliberated as a potential example of automated emergency tasks in dynamic marine environments. But the maritime transmission performances among UAVs and offshore platform becomes a crucial problem. The task planning problems of numerous UAVs are classified into two parts, route planning and task allocation problems, are different and interrelated from one another. Because of the complicated marine environments, both efficiencies of UAVs in an intelligent ocean are not acceptable. This study presents a Modified Aquila Optimization Algorithm based Route Planning Scheme (MAOA-RPS) for UAV networks. The presented MAOA-RPS technique is majorly concentrated on the detection of optimal routes for UAV data transmission. To attain this, the MAOA-RPS technique involves the incorporation of Levy flight (LF) with the traditional AOA. In addition, the optimal routes are chosen by the MAOA-RPS technique via a fitness value, which can be determined by many input parameters. For assessing the enhanced outcomes of the MAOA-RPS technique, we have performed a series of experiments. The comparison study revealed the improved performance of the MAOA-RPS technique under distinct metrics. © 2022 IEEE

Author keywords

Data transmission   Levy flight   Metaheuristics   Route planning   Unmanned aerial vehicles

Indexed keywords

Engineering controlled terms: Aircraft detection   Antennas   Data communication systems   Data transfer   Offshore oil well production   Unmanned aerial vehicles (UAV)   Vehicle transmissions

Engineering uncontrolled terms   Aerial vehicle   Data-transmission   Levy flights   Marine environment   Metaheuristic   Optimization algorithms   Planning scheme   Route planning   Unmanned aerial vehicle   Vehicle network

Engineering main heading: Optimization

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Sasmal, B. , Hussien, A.G. , Das, A.
A Comprehensive Survey on Aquila Optimizer
(2023) Archives of Computational Methods in Engineering

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| SAE Technical Papers |
| 23 December 2022 |
| SAE International Conference on Advances in Design, Materials, Manufacturing and Surface Engineering for Mobility, ADMMS 2022; Chennai; India; 25 November 2022 through 26 November 2022; Code 185955 |

Experimental Investigation on the Wear and Tear Characteristics of Chrome and Moly Coated Piston Rings Used in Automobile Engine Application(Conference Paper)

Deepan Kumar, S.,   Karthik, R.,   Boopalan, N.,   Balakrishnan, S.,   Arulkumar, S.,   Boobalan, S.

[a]Bannari Amman Institute of Technology, India
[b]Central Institute of Petrochemical Engg, India
[c]Kongu Engineering College, India

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Abstract

A compression ring may be a metal seal between the pistons and cylinder walls in a combustion chamber of Internal combustion engine, the important function of the compression ring is to cover the combustion area in order that there's no movement of gases from the engine chamber to the crank case area. Supportive heat transmission from the piston to the cylinder wall helps in achieving the specified power exerted at the piston crown and efficiency of an engine. This compression ring is continuously subjected to friction and wear. To overcome or decrease the wear and tear it's coated with certain materials which rises the lifetime of the ring. In this project we are using Chrome and Moly coated piston rings. The Coating thickness were measured using Image Analyzer. The Pin-on-Disk (POD) testing machine used to find the wear and tear rate of Chrome and Moly coated piston rings. The results obtained from the test were studied for optimum piston ring coating and found that the moly coating shows greater resistance to wear compared to the chrome coating as per the obtained results from the pin on disk equipment © 2022 SAE International. All Rights Reserved.

Indexed keywords

Engineering controlled terms: Coated materials   Engine pistons   Piston rings   Thickness measurement   Wear of materials   Wear resistance

Engineering uncontrolled terms   Compression rings   Cylinder walls   Engine application   Experimental investigations   Friction and wear   Heat transmission   Pin on disk   Piston-rings   Power   Wear and tear

Engineering main heading: Coatings

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6th International Conference on Electronics, Communication and Aerospace Technology, ICECA 2022 - Proceedings

2022, Pages 638-645

6th International Conference on Electronics, Communication and Aerospace Technology, ICECA 2022; Coimbatore; India; 1 December 2022 through 3 December 2022; Category numberCFP22J88-ART; Code 186067

An Secure and Low Energy Consumption based Intelligent Street Light Managing System using LoRa Network(Conference Paper)

Devi, P.K.,   Arulanantham, D.,   Kalaivanan, C.,   Gomathi, N.,   Arunkumar, J.R.,   Ramkumar, G.

[a]VelTech Rangarajan Dr. Sagunthala R and D, Institute of Science and Technology, Department of Electronics and Communication Engineering, Chennai, India
[b]Nandha Engineering College, Department of Electronics and Communication Engineering, Erode, India
[c]Sona College of Technology, Department of Electrical and Electronics Engineering, Salem, India

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Abstract

Smart meters are used in smart buildings to regulate streetlights (SLs) that enhance implementation performance by making evaluations of electricity parameters and illumination levels easily accessible. Temporary high-resolution data is needed in places where smart meters are being used in order to increase SLs' energy effectiveness (EE). Because of its low expenditure, secure connections, and extended range both inside and outside, long range (LoRa) is a perfect wireless communication technology for usage in smart urban. To do this, a low-cost new scheme has been developed and thoroughly tested by creating three devices based on the Arduino open-source electrical framework: the Control device for Street Lights (CSL), Lighting Level Device (LLD), and Gateway LoRa Network (GLN). The creation and execution of the hardware and software are discussed in this work. The energy efficiency for street lights (ESL) methodology, that also uses the illumination level evaluated on a single set of SLs with such a hyperparameter tuning, has also been established to conservation and efficiency of lighting systems. This method presumes that various illumination level occur all across the night and adjusts the illumination utilizing the intensity of pedestrian movement. © 2022 IEEE.

Author keywords

(and LoRa)   (Devices for street lights)   (including the MCDSL)   (LMD)

Indexed keywords

Engineering controlled terms:	(Energy efficiency) (Energy utilization) (Gateways (computer networks)) (Internet of things) (Low power electronics) (Open source software) (Street lighting)
Engineering uncontrolled terms	(And long range) (Device for street light) (Energy effectiveness) (High resolution data) (Illumination levels) (Including the MCDSL) (LMD) (Low energy consumption) (Parameter levels) (Performance)
Engineering main heading:	(Smart meters)

Cited by 2 documents

Chandran, K.P. , Niji, P.S. , Chinnammal, V.
LiFi: A Visible Light Communication Assisted Fishermen Tracking System using GPS
(2023) Proceedings of the 2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023

Reddy, P.N. , Shyamala Bharathi, P.
Spectrum Sensing Using Binary Hypothesis Test Comparing with Energy Detection Based Method to Improve the Probability of Detection
(2023) Proceedings of the 2nd IEEE International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2023

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6th International Conference on Electronics, Communication and Aerospace Technology, ICECA 2022 - Proceedings

2022, Pages 171-174

6th International Conference on Electronics, Communication and Aerospace Technology, ICECA 2022; Coimbatore; India; 1 December 2022 through 3 December 2022; Category numberCFP22J88-ART; Code 186067

A Wearable Circularly Polarized Wideband Microstrip Antenna for Sturdy Less, Resilient Application Using Rubber Substrate(Conference Paper)

Rathanasabhapathy, G.,   Kamali, K.,   Sharma, R.A.,   Rai, D.G.K.

Nandha Engineering College, Department of Ece, Erode, India

Abstract

To monitor patients with hyperthermia, a flexible circularly polarised (CP) wearable antenna using a rubber substrate is proposed for 5.8 GHz Wireless Body Area Network (WBAN) systems. Circular polarization is made possible by the Coplanar waveguide, which extends an inverted L-shaped metal strip and utilizes a microstrip line monopole. Both gain and SAR indicate that the suggested antenna performs satisfactorily. To obtain good performance in terms of gain and SAR, a reflector comprised of a artificial magnetic conductor was employed. It has been established that overall performance is strong against constructional deformation along the x-axis. This characteristic demonstrates how reliable the proposed antenna is for wearable off-body applications. © 2022 IEEE.

Author keywords

artificial magnetic conductor   circular polarisation   Communication off-body   wearable antenna
Wireless Body Area Network (WBAN)

Indexed keywords

Engineering controlled terms:
Coplanar waveguides   Microstrip antennas   Microwave antennas   Rubber   Strip metal
Wearable antennas   Wireless local area networks (WLAN)

Engineering uncontrolled terms
Artificial magnetic conductors   Circularly-polarized   Communication off-body   L-shaped
Network systems   Performance   Rubber substrates   Wideband microstrip antennas
Wireless body area network

Engineering main heading:
Circular polarization

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International Journal of Materials Research

Volume 113, Issue 12, December 2022, Pages 1033-1044

Experimental assessment on the contact characteristics of 3D printed flexible poly lactic acid (PLA) soft fingertips(Article)

Yuvaraj, S.,   Venkatesh Raja, K.,   Bakkiyaraj, M.,   Malayalamurthi, R.,   Magibalan, S.,   Thavasilingam, K., Muralidharan, K.   👤

[a]Department of Robotics and Automation, Easwari Engineering College, Tamil Nadu, Chennai, 600 089, India
[b]Department of Mechanical Engineering, Sona College of Technology, Tamil Nadu, Salem, 636 005, India
[c]Department of Mechanical Engineering, Government College of Engineering, Tamil Nadu, Salem, 636 011, India

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Abstract

This purpose of this research work primarily focuses on assessing the contact characteristics of a novel 3D printed flexible poly lactic acid (PLA) fingertip exposed to a normal load ranging from 1-750 N. The 3D printed fingertip is pressed against three different target surfaces having concave, convex and flat profiles to facilitate a rational comparison. The growth of contact area is recorded for a wide range of applied normal force against the fingertip on logging sheets and the same is converted in vector format for facilitating digital measurements. From close examination of the results, it may be noted that the rate of growth of contact area follows the parametric relationship a = cN γ. A weighted least squares fit algorithm is used to formulate the parametric relationship based on experimental data. Further, the contact characteristics of the 3D printed fingertip follows the same pattern of soft neoprene fingertip, and it is well in line with the expected results. Hence, it is evident that 3D printed fingertips could be utilized for handling fragile to hard objects and capable of handling multi-profiled objects in dexterous robotic manipulation. Moreover, complex profiled fingertips can easily be manufactured by 3D printing, and it can be considered as a better alternative for conventionally manufactured anthropomorphic robotic grippers. Practical implications of this research will be highly useful for development of soft-fingered robotic grippers for dexterous robotic manipulations. © 2022 Walter de Gruyter GmbH, Berlin/Boston.

Author keywords

(3D printed fingertips) (Anthropomorphic finger modeling) (Conformal contact) (Soft fingertips)

Indexed keywords

Engineering controlled terms:	(Grippers) (Lactic acid)
Engineering uncontrolled terms	(3d printed fingertip) (Anthropomorphic finger modeling) (Conformal contacts) (Contact areas) (Contact characteristics) (Finger modelling) (Parametric relationships) (Poly lactic acid) (Robotic manipulation) (Soft fingertips)
Engineering main heading:	(3D printers)

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Mechanical and morphological characterization of sisal/kenaf/pineapple mat reinforced hybrid composites(Article)

Sahayaraj, A.F.,   Jenish, I.,   Tamilselvan, M.,   Muthukrishnan, M.,   Kumar, B.A.   👤

[a]Department of Mechanical Engineering, Kalaignar Karunanidhi Institute of Technology, Tamil Nadu, Coimbatore, 641402, India
[b]Department of Applied Mechanics, Seenu Atoll School, Hulhu-medhoo, Addu City, 19060, Maldives
[c]Department of Mechanical Engineering, Nandha College of Engineering, Vaikkaalmedu, Tamil Nadu, Erode, 638052, India

Abstract

The objective of this research is to produce and analyze natural fiber-based composites (sisal/polyester, kenaf/polyester, pineapple/polyester) and their hybrid composites (sisal/kenaf/polyester, kenaf/pineapple/polyester, and sisal/kenaf/pineapple/polyester) made by compression molding. These composites were characterized mechanically using hardness (shore D), tensile, flexural, and impact (Charpy) tests. Fiber matrix bonding was analyzed using Scanning Electron Microscopy (SEM). Among all the fiber-based samples (sisal/polyester, kenaf/polyester, and pineapple/polyester), sisal/polyester shows a high hardness value of 93.24 S_d a tensile strength of 43.00 MPa, and an impact strength around 7.42 kJ/m^2, while pineapple/polyester produces a better flexural strength of 83.21 MPa. Hybrid composites showed improved mechanical performance. The mechanical characteristics of the sisal/kenaf/pineapple/polyester hybrid composite were 56.16 MPa, 1.71 GPa, and 9.34 kJ/m^2. The highest flexural strength of the Sisal/kenaf/polyester multi-layered samples was observed as 83.24 MPa. © 2022 Authors. All rights reserved.

Author keywords

compression molding method   fiber mat   hybrid composite   mechanical characterization   scanning electron microscope

Indexed keywords

Engineering controlled terms:	Bending strength Compression molding Fiber bonding Hardness Hemp Impact strength Kenaf fibers Scanning electron microscopy Tensile strength
Engineering uncontrolled terms	Charpy tests Compression molding method Fiber-matrix bonding Fibermat Hybrid composites Mechanical characterizations Molding methods Morphological characterization Scanning electron microscope Scanning electrons
Engineering main heading:	Hybrid composites

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Rajamanickam, S.K. , Ponnusamy, N. , Mohanraj, M.

Experimental investigation on mechanical and tribological characteristics of snake grass/sisal fiber reinforced hybrid composites

(2023) International Polymer Processing

Sharma, H. , Krishnakumar, B. , Dickens, T.J.

A bibliometric survey of research trends in vitrimer

(2023) Heliyon

Iyyadurai, J. , Arockiasamy, F.S. , Manickam, T.

Experimental Investigation on Mechanical, Thermal, Viscoelastic, Water Absorption, and Biodegradability Behavior of Sansevieria Ehrenbergii Fiber Reinforced Novel Polymeric Composite with the Addition of Coconut Shell Ash Powder

(2023) Journal of Inorganic and Organometallic Polymers and Materials

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Advanced Perspective on Human Detection system with Hybrid Feature Set(Article)(Open Access)

Nallasivam, M.P., Senniappan, V.

[a]Department of Electronics and Communication Engineering, Nandha Engineering College, Tamil Nadu, Erode, 638052, India
[b]Department of Electronics and Instrumentation Engineering, Kongu Engineering College, Tamil Nadu, Erode, 638052, India

Abstract

Detecting and discriminating humans in video frames for surveillance applications is a demanding task. Identifying and highlighting humans by eliminating shadows from the video frames is vital for prudence motive. In this paper, a three-step procedure is proposed, which includes motion detection by background subtraction in live video frames, morphological gradient-based shadow removal, and human detection by Hybrid Feature Set (HFS), which comprises Histogram Oriented Gradient (HOG) and Local Binary Pattern (LBP) with adaptive Neuro-Fuzzy inference system. The first step incorporates static background subtraction and dynamic background subtraction. The second step is to remove shadows by using a morphological gradient with the horizontal directional mask. The third step includes near-field, mid-field, and far-field human detection by using an adaptive Neuro-Fuzzy inference system. The results obtained from the various performed experimental analysis demonstrates diverse parametrical measures, which outperforms comparatively when benchmark databases and real-time surveillance video frames were used. © 2022, Universidade do Porto - Faculdade de Engenharia. All rights reserved.

Author keywords

Feature Extraction   Image Motion Analysis   Machine Vision   Morphological Operations   Subtraction Techniques

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Sensors
Volume 22, Issue 21, November 2022, Article number 8377

Toward Better Food Security Using Concepts from Industry 5.0(Review)(Open Access)

Guruswamy, S.,   Pojić, M.,   Subramanian, J.,   Mastilović, J.,   Sarang, S.,   Subbanagounder, A.,   Stojanović, G., Jeoti, V. 👤

[a]KPR Institute of Engineering and Technology, Tamil Nadu, Coimbatore, 641407, India
[b]Institute of Food Technology, University of Novi Sad, Novi Sad, 21000, Serbia
[c]PSG College of Technology, Tamil Nadu, Coimbatore, 641004, India

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Abstract

The rapid growth of the world population has increased the food demand as well as the need for assurance of food quality, safety, and sustainability. However, food security can easily be compromised by not only natural hazards but also changes in food preferences, political conflicts, and food frauds. In order to contribute to building a more sustainable food system—digitally visible and processes measurable—within this review, we summarized currently available evidence for various information and communication technologies (ICTs) that can be utilized to support collaborative actions, prevent fraudulent activities, and remotely perform real-time monitoring, which has become essential, especially during the COVID-19 pandemic. The Internet of Everything, 6G, blockchain, artificial intelligence, and digital twin are gaining significant attention in recent years in anticipation of leveraging the creativity of human experts in collaboration with efficient, intelligent, and accurate machines, but with limited consideration in the food supply chain. Therefore, this paper provided a thorough review of the food system by showing how various ICT tools can help sense and quantify the food system and highlighting the key enhancements that Industry 5.0 technologies can bring. The vulnerability of the food system can be effectively mitigated with the utilization of various ICTs depending on not only the nature and severity of crisis but also the specificity of the food supply chain. There are numerous ways of implementing these technologies, and they are continuously evolving. © 2022 by the authors.

Author keywords

(blockchain) (digital twin) (food security) (ICT) (Industry 5.0) (IoE)

Indexed keywords

Engineering controlled terms:	(Blockchain) (COVID-19) (Population statistics) (Supply chains)
Engineering uncontrolled terms	(Block-chain) (Food demand) (Food security) (Food supply chain) (Food system) (Industry 5.0) (Information and Communication Technologies) (IoE) (Rapid growth) (World population)
Engineering main heading:	(Food supply)
EMTREE medical terms:	(artificial intelligence) (food security) (human) (pandemic)

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Konfo, T.R.C. , Djouhou, F.M.C. , Hounhouigan, M.H.
Recent advances in the use of digital technologies in agri-food processing: A short review
(2023) Applied Food Research

Zhanbayev, R.A. , Irfan, M. , Shutaleva, A.V.
Demoethical Model of Sustainable Development of Society: A Roadmap towards Digital Transformation
(2023) Sustainability (Switzerland)

Botilias, G.-P. , Margariti, S.V. , Besarat, J.
Designing and Developing a Meat Traceability System: A Case Study for the Greek Meat Industry
(2023) Sustainability (Switzerland)

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Concurrency and Computation: Practice and Experience

Volume 34, Issue 22, 10 October 2022, Article number e7046

A hybrid soft computing technique for intrusion detection in web and cloud environment(Article)

Maheswari, K.G., Siva, C., Nalinipriya, G.   👤

[a]Department of Information Technology, Government College of Engineering, Erode, India
[b]Department of Information Technology, Nandha Engineering College, Erode, India
[c]Department of Information Technology, Saveetha Engineering College, Chennai, India

Abstract

Cloud computing environment contains important, essential, or confidential information; therefore, a security solution is needed to prevent this environment from potential attacks. In short, cloud computing has become one of the most sought after technologies in the field of information technology, and among the most dangerous threats. In this article, we propose a hybrid soft computing technique for intrusion detection in web and cloud environment (ST-IDS). In ST-IDS, we illustrate whale integrated slap swarm optimization algorithm for pre-processing which remove the unwanted/repeated data's in dataset. We introduce new clustering technique based on modified tug-of-war optimization algorithm which groups the data in different segments. Then, we develop hybrid machine learning technique that is, capsule learning based neural network which categorize the attack in cloud environment. Finally, the proposed ST-IDS technique can evaluate through standard open source datasets are KDD cup'99 and NSL-KDD. The performance comparison of the proposed ST-IDS technique using existing innovative technologies in terms of accuracy, precession, recall, specificity, F measure, false positive rate, and false negative rate. © 2022 John Wiley & Sons, Ltd.

Author keywords

CLNN   clustering technique   hybrid machine learning   IDS   intrusion detection   preprocessing

Indexed keywords

Engineering controlled terms:	Cloud computing Cluster analysis Network security Optimization Soft computing
Engineering uncontrolled terms	CLNN Cloud computing environments Cloud environments Clustering techniques Hybrid machine learning IDS Intrusion-Detection Preprocessing Softcomputing techniques Web environment
Engineering main heading:	Intrusion detection

Cited by 1 document

Yang, T. , Li, M. , Deng, H.

A Sentence-BERT-based Model for Expressing Key Features of Hospital Web Logs

(2023) 2023 4th International Seminar on Artificial Intelligence, Networking and Information Technology, AINIT 2023

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Multi-Objective Particle Swarm Optimization Based Preprocessing of Multi-Class Extremely Imbalanced Datasets(Article)

Devi Priya, R., Sivaraj, R., Abraham, A., Pravin, T., Sivasankar, P., Anitha, N. 👤

[a]Department of Computer Science and Engineering, Centre for IoT and Artificial Intelligence, Kpr Institute of Engineering and Technology, TamilNadu, Coimbatore, India
[b]Department of Computer Science and Engineering, Nandha Engineering College, TamilNadu, Erode, India
[c]Center for Artificial Intelligence, Innopolis University, Innopolis, Russian Federation

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Abstract

Today's datasets are usually very large with many features and making analysis on such datasets is really a tedious task. Especially when performing classification, selecting attributes that are salient for the process is a brainstorming task. It is more difficult when there are many class labels for the target class attribute and hence many researchers have introduced methods to select features for performing classification on multi-class attributes. The process becomes more tedious when the attribute values are imbalanced for which researchers have contributed many methods. But, there is no sufficient research to handle extreme imbalance and feature selection together and hence this paper aims to bridge this gap. Here Particle Swarm Optimization (PSO), an efficient evolutionary algorithm is used to handle imbalanced dataset and feature selection process is also enhanced with the required functionalities. First, Multi-objective Particle Swarm Optimization is used to transform the imbalanced datasets into balanced one and then another version of Multi-objective Particle Swarm Optimization is used to select the significant features. The proposed methodology is applied on eight multi-class extremely imbalanced datasets and the experimental results are found to be better than other existing methods in terms of classification accuracy, G mean, F measure. The results validated by using Friedman test also confirm that the proposed methodology effectively balances the dataset with less number of features than other methods. © 2022 World Scientific Publishing Company.

Author keywords

feature selection imbalanced dataset Multi-objective Particle Swarm Optimization performance metrics

Indexed keywords

Engineering controlled terms:	Classification (of information) Large dataset Multiobjective optimization Particle swarm optimization (PSO) Statistical tests
Engineering uncontrolled terms	Class labels Features selection Imbalanced dataset Multi objective Multi objective particle swarm optimization Particle swarm Particle swarm optimization Performance metrices Swarm optimization Target class
Engineering main heading:	Feature Selection

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AIP Conference Proceedings

Volume 2527, 14 October 2022, Article number 020013

2021 International Conference on Advancements in Materials and Manufacturing Engineering, ICAMME 2021; Tamil Nadu; India; 29 September 2021 through 30 September 2021; Code 183395

Fatigue life assessment on artificially aged TIG welded AA6061 aluminum alloy joints(Conference Paper)(Open Access)

Venkataramanan, A.R.,   Praveen, J.J.,   Kumar, B.A.,   Vinothkumar, R.,   Vinosh, M.   ⚇

[a]Department of Mechanical Engineering, Sona College of Technology, Salem, India
[b]Department of Mechanical Engineering, Srm Trp Engineering College, Trichy, India
[c]Department of Mechanical Engineering, Nandha Engineering College, Erode, India

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Abstract

Aluminum alloys are essential materials in many sectors due to their unique properties, such as excellent corrosion resistance, formability, and good strength ratio. But most of the failures encountered in engineering components by the sudden failure, i.e., without prior intimation, namely fatigue failure. Most of the research has been concentrated on improving the fatigue life of engineering components by a different technique, such as pre- and post-weld heat treatment. In this investigation, the aging treatment has been used to improve the fatigue life of the component. From the experimental results, the artificial aged joint revealed superior fatigue life than the common in as weld condition.
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⚇ Venkataramanan, A.R.; Department of Mechanical Engineering, Sona College of Technology, Salem, India;

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Analysing the mechanical and metallurgical behavior of aluminium 7075 composite with reinforcement of silicon carbide and zirconium oxide(Conference Paper)(Open Access)

Chellam, A.K.B.,　Pandian, M.,　Jaganathan, D.,　Mydeen, M.S.R.,　Kalimuthu, K.

[a]Department of Mechanical Engineering, Nandha Engineering College, Tamil Nadu, Erode, 638052, India
[b]Department of Mechanical Engineering, Sona College of Technology, Tamil Nadu, Salem, 636005, India
[c]Department of Mechanical Engineering, Sri Krishna College of Engineering and Technology, Tamil Nadu, Coimbatore, 641008, India

Abstract

In today's production industry, Aluminium Matrix Composites (AMCs) are the capable material.Because of their excellent mechanical qualities, they are widely employed in the aerospace, automobile, and naval industries.Strong ceramic particles, such as SiC, ZrO2, and others, strengthen the aluminium matrix, resulting in greater wear resistance and a better strength-to-weight ratio.Depending on the type of reinforcement, size, and morphology, AMCs can be manufactured in a assortment of methods.Traditional stir casting is a popular method for making AMCs meanwhile it is very reasonable and allows for a variety of materials and processing conditions. Using an indigenously designed stir casting technology, an attempt was made to produce Aluminium Matrix Composites (AA 7075) reinforced with SiC powder at various weight percentages.The homogeneous dispersion of SiC particles in the AMCs was verified by SEM morphology. Mechanical testing demonstrated that the tensile strength, wear resistance, Vickers hardness, and charpy tests all improved as the weight percentage of SiC particles increased. © 2022 Author(s).

Jaganathan, D.; Department of Mechanical Engineering, Sri Krishna College of Engineering and Technology, Tamil Nadu, Coimbatore, India;

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Kumar, N.S.,   Chandrasekaran, G.,   Thangavel, J.,   Vanchinathan, K.,   Gnanavel, C.,   Priyadarshi, N.,   Bhaskar, M.S.,   Hussien, M.G.,   El-Sousy, F.F.M.,   Ali, M.M.   ⚇

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Abstract

In recent decades, there has been a growing interest in the design and development of power loss reduction in electric drive systems. To realize the full potential of the Brushless DC motor (BLDCM), the design methodology of an effective intelligent controller is vital. On the other hand, the Landsman converter is used in a bridgeless configuration to enhance the power factor and minimize the power loss of the BLDCM. In addition, BLDCM utilizes the different intelligent controllers that are used to decrease power loss. The performance of the Landsman converter and CSC converter is analyzed concerning various configurations/stages, and the numerical MATLAB 2016a simulation results are discussed to arrive at the suitable intelligent controller for the BLDC motor, and comparison results are presented. The proposed converter is designed and validated using hardware implementation by minimizing power loss. Effectiveness can be tested and valued for the proposed controller for the various intelligent controllers of BLDCM. © 2022 by the authors.

Author keywords

BLDC motor   CSC converter   Fuzzy controller   Landsman converter

Funding details

⚇ Hussien, M.G.; Department of Electrical Power and Machines Engineering, Faculty of Engineering, Tanta University, Tanta, Egypt;

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(2023) Electronics (Switzerland)

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(2023) International Journal of System Assurance Engineering and Management

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(2023) Proceedings of the 8th International Conference on Communication and Electronics Systems, ICCES 2023

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Petroleum Science and Technology

2022

Effect of SnO$_2$ and Ag nano-additives on the performance, combustion and emission characteristics of diesel engine fueled with mango seed biodiesel

(📰 Article in press ❓)

Senniangiri, N.,   Bensam Raj, J.,   Brucely, Y.,   Herbert bejaxhin, A.B.   👤

[a]Department of Mechanical Engineering, Nandha Engineering College (Autonomous), Tamilnadu, Erode, India
[b]Department of Mechanical Engineering, Muthayammal Engineering College, Tamilnadu, Rasipuram, India
[c]Department of Mechanical Engineering, SRM TRP Engineering College, Tamilnadu, Tiruchirappalli, India

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Abstract

The emission from diesel engine leads to global warming and health issues. Alternative fuel is the better choice to solve the aforementioned issues. Bio-fuels have the potential to decrease the engine emission. This research works deals with the performance, combustion and emission characteristics of diesel engine operated with mango seed biodiesel blended with SnO$_2$ and Ag particles. A test was conducted at different loading conditions on the single cylinder, four stroke, and vertical diesel engine. Three types of fuel blends were prepared viz. BD containing 25% methyl ester of mango seed oil and 75% diesel fuel, BD with 50 ppm Ag nanoparticles and BD with 50 ppm SnO$_2$ nanoparticles. Experimental results were compared with the performance, combustion and emission results of diesel fuel. The BD–Ag biodiesel showed 4.4% higher BTE than the pure biodiesel due to the high thermal conductivity of Ag particles. Moreover, the BD–Ag biodiesel exhibited 16.7% more HRR than pure biodiesel owing to better heat transfer ability of Ag particles. In addition, the BD–Ag biodiesel displayed the maximum reduction in CO, UBHC and smoke density of 27.8%, 14.3%, and 11.8%, respectively, compared with that of diesel fuel. © 2022 Taylor & Francis Group, LLC.

Author keywords

combustion   diesel engine   emission   mango seed biodiesel   nanoparticles   performance

Indexed keywords

Engineering controlled terms: Biodiesel   Combustion   Diesel fuels   Fruits   Fuel additives   Global warming   Heat transfer   Nanoparticles   Smoke

Engineering uncontrolled terms: Ag particles   Combustion characteristics   Emission   Emission characteristics   Health issues   Mango seed biodiesel   Mango seeds   Nano additives   Performance   Performance characteristics

Engineering main heading: Diesel engines

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Rami Reddy, S. , Sarangi, S.K.

Optimizing the effect of using novel hydrogen enriched nano particles added emulsified waste mango seed biodiesel in diesel engine

(2023) Fuel

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Sridevi, R.,   Nuthakki, P.,   Vijay, S.,   Nanda, S.K.,   Arulanantham, D.,   Prabu, R.T.

[a]Psg College of Arts & Science, Department of Computer Science, Coimbatore, India
[b]Vr Siddharth Engineering College, Department of It, Andhra Pradesh, Vijayawada, India
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Abstract

Parkinson's disease is a neurological ailment that impairs mobility in humans that is caused by a tolerant dysfunction of the nervous system. It progresses slowly, with the onset of a barely noticeable tremor in only one hand every now and again. Nevertheless, while tremors are perhaps the most well-known symptom of PD, the ailment is also associated with stiffness and slowness of movement. Three well-established machine learning-based algorithms are used in this study to solve the challenge of enhanced categorization of data accessible at an Internet of Things node. After reviewing current literature, it has been discovered that just a few papers have been published on the categorization and forecasting of IoT-based data using ML approaches. A growing amount of attention has been paid in recent times to the categorization and forecasting of health information that is done online. In light of this aim, the current study investigates the intelligent categorization of PD using data from the Internet of Things (IoT), which is accomplished through the use of ML algorithms. The ML based classifiers employed in this article are the Decision Tree, the Random Forest, and the Naive Bayes. These classifiers were chosen based on their stable and better classification results for other common datasets, which is demonstrated in previous research. The Internet of Things-based node gets the data and provides a categorization answer more quickly, so assisting in choice. The simulation-based studies are carried out with the help of the two representative data sets that have been provided. The findings of the simulations are also used to investigate the relationship between the amount of features and classification accuracy. The results reveal that the Random Forest, Decision Tree, and Naive Bayes are the top three classification algorithms in terms of classification accuracy. Naive Bayes, Decision Tree, and Random Forest are the models that rank highest in terms of execution time, while the others are ranked lower. The right classifier for usage in Internet of Things (IoT) based industrial contexts must be determined based on the requirements. © 2022 IEEE.

Author keywords

accuracy   DT   Internet of Things (IoT)   multi-class   NB   RF   traffic data

Indexed keywords

Engineering controlled terms: Classification (of information)   Classifiers   Decision trees   Machine learning   Random forests

Engineering uncontrolled terms   'current   Accuracy   DT   Internet of thing   Multi-class   Naive bayes   NB   Random forests   RF   Traffic data

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A Novel and Robust Meningioma Tumor Identification using Modified Convolutional Neural Network

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An Attention Mechanism for Forest Tree Segmentation based on Efficient Convolutional Neural Networks

(2023) Proceedings of 8th IEEE International Conference on Science, Technology, Engineering and Mathematics, ICONSTEM 2023

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Volume 43, Issue 3, 2022, Pages 3695-3707

Detection and classification of cervical cancer images using CEENET deep learning approach(Article)

Subarna, T.G.,   Sukumar, P.   👤

Department Of Electronics And Communication Engineering, Nandha Engineering College, Tamilnadu, Erode, India

Abstract

Earlier detection of cervical cancer in women can save their lives before a chronic development. The accurate detection in cancer tissues of cervix in the human body is very important. In this article, cervical images were classified into either affected or healthy images using deep learning architecture. The proposed approach was designed with the modules of Edge detector, complex wavelet transform, feature derivation and Convolutional Neural Networks (CNN) architecture with segmentation. The edge pixels in the source cervical image were detected using Kirsch's edge detector, the Complex Wavelet Transform (CWT) was there used to decompose the edge detected cervical images into number of sub bands. Local Derivative Pattern (LDP) and statistical features were computed from the decomposed sub bands and feature map was constructed using the computed features. The featured map along with the source cervical image was fed into the Cervical Ensemble Network (CEENET) model for classifying of cervical images into the classes healthy or cancer (affected). © 2022 - IOS Press. All rights reserved.

Author keywords

cancer   cervical image   Cervix   CNN   deep learning

Indexed keywords

Engineering controlled terms: Complex networks   Deep learning   Diseases   Image classification   Image compression   Network architecture   Wavelet transforms

Engineering uncontrolled terms   Cancer   Cervical cancers   Cervical images   Cervix   Complex wavelet transforms   Convolutional neural network   Deep learning   Ensemble networks   Learning approach   Subbands

Engineering main heading: Convolutional neural networks

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(2023) Applied Sciences (Switzerland)

Alsalatie, M. , Alquran, H. , Mustafa, W.A.

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(2022) Diagnostics

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The deep investigation of structural and opto-electrical properties of Yb_2O_3 thin films and fabrication of Al/Yb_2O_3/p-Si (MIS) Schottky barrier diode(Article)

Panneerselvam, A.,   Mohan, K.S.,   Marnadu, R.,   Chandrasekaran, J.   👤

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Abstract

The present research explores the fabrication of a metal insulator semiconductor Schottky barrier diode (SBD) with rare earth metal oxide (Yb_2O_3) thin films as insulators that are effectively developed on a large scale using the low-cost jet nebulizer spray pyrolysis technique (JNSP). The Yb_2O_3 thin films are deposited at various substrate temperatures (350 °C–550 °C) to ascertain its influence on the characteristic properties of the material. The structural, morphological and opto-electrical properties are investigated using various characterization techniques. Here, X-ray diffraction (XRD) analysis revealed the single crystalline cubic crystal structure of Yb_2O_3 thin films. Field emission scanning electron microscope (FESEM) images show the presence of uniformly distributed cage and globular like structures spread over the entire surface of the Yb_2O_3 films. The elemental composition study demonstrates the presence of Yb and O. The optical direct energy band gap of Yb_2O_3 thin films have been analyzed through UV-Visible spectra. Current – voltage measurements were analyzed in dark and light conditions for the Al/Yb_2O_3/p-Si structured Schottky barrier diodes (SBDs) which are fabricated with interfacial layers at different substrate temperatures. Further, the functionality of the SBDs was tested at different temperatures ranging from 30 °C to 150 °C. The experimental results of all SBDs indicate a linear reduction in the ideality factor (n) up to 2.537 and 2.059 with a slight increase in the effective barrier height (Φ_B) of 0.789 eV& 0.638 in dark and light conditions, respectively. The SBD fabricated at 550 °C recorded good performance, which will be suitable for thermal dependent electronic device applications. [Figure not available: see fulltext.] © 2021, The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Author keywords

Globular-like structure   I-V characteristics   Schottky barrier diodes   Spray pyrolysis Yb_2O_3 thin films

Indexed keywords

Engineering controlled terms:

Aluminum compounds   Crystal structure   Energy gap   Fabrication   Metal insulator boundaries   Metals   Oxide films   Rare earths   Scanning electron microscopy   Schottky barrier diodes   Semiconductor diodes   Spray pyrolysis   Substrates   X ray diffraction analysis   Ytterbium compounds

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Buyukbas-Ulusan, A. , Tataroglu, A. , Altlndal-Yerişkin, S.

Analysis of the Current Transport Characteristics (CTCs) in the Au/n-Si Schottky Diodes (SDs) with Al2O3Interfacial Layer over Wide Temperature Range

(2023) ECS Journal of Solid State Science and Technology

Mohan, K.S. , Marnadu, R. , Shin, Y.

Substrate heat-assisted spray pyrolysis of crack-free ytterbium sesquioxide-Si heterojunction diodes for photo-sensing applications

(2023) Surfaces and Interfaces

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