



ICERI-2022

VIRTUAL CONFERENCE

EQUINOX-2022

7TH INTERNATIONAL CONFERENCE ON

**ENGINEERING RESEARCH AND
INNOVATIONS**

22ND & 23RD SEPTEMBER-2022

MUMBAI, INDIA

Organized by

Terna Engineering college(TEC), Nerul, Navi Mumbai

in Association with

Institute For Engineering Research and Publication (IFERP)

ISBN : 978-93-92105-03-6



EQUINOX-2022

7th International Conference On
Engineering Research and Innovations

ICERI-2022



Virtual Conference



22nd & 23rd September, 2022

Organized by
Terna Engineering college(TEC), Nerul, Navi Mumbai
In association with
Institute For Engineering Research and Publication (IFERP)

Publisher: IFERP Explore

© Copyright 2022, IFERP-International Conference

No part of this book can be reproduced in any form or by any means without prior written Permission of the publisher.

This edition can be exported from India only by publisher

IFERP-Explore

Preface

The 7th International Conference on Engineering Research and Innovations (ICERI- 2022) is being organized by Terna Engineering college(TEC), Nerul, Navi Mumbai in Association with IFERP-Institute For Engineering Research and Publication on the 22nd – 23rd September, 2022.

The “7th International Conference on Engineering Research and Innovations ” was a notable event which brings Academia, Researchers, Engineers, Industry experts and Students together.

The purpose of this conference is to discuss applications and development in area of “Engineering Research and Innovations” which were given International values by Institute For Engineering Research and Publication (IFERP).

The International Conference attracted over 300 submissions. Through rigorous peer reviews 115 high quality papers were recommended by the Committee. The Conference aptly focuses on the tools and techniques for the developments on current technology.

We are indebted to the efforts of all the reviewers who undoubtedly have raised the quality of the proceedings. We are earnestly thankful to all the authors who have contributed their research works to the conference. We thank our Management for their wholehearted support and encouragement. We thank our Principal for his continuous guidance. We are also thankful for the cooperative advice from our advisory Chairs and Co-Chairs. We thank all the members of our local organizing Committee, National and International Advisory Committees.

ICERI-22



Shri. Malhar Patil

Executive Trustee
Terna Education Trust

ICERI- 2022 is the seventh in the series and we express lot of pride and satisfaction in organising the ICERI-2022. Eminent personalities from Academia, Industry and Research institutions are going to share their valuable expertise which will be a value addition.

All the papers are referred to experts in the concerned field and modified by the authors as per their guidance. The response from researchers to the conference has increased many folds compared to the previous one and we are sincerely thankful to all the participants and the institutions for their support.

It is my great pleasure to wish all the researchers for their considerable achievements in their respective fields. Collectively all our efforts should make the society to progress with prosperity and peace. I am confident that, this conference will certainly be a step towards achieving this objective.



Dr. L. K. Ragha

Convenor, ICERI 2022

Principal, Terna Engineering College (TEC)

Research activities across all the engineering fields pave the way for the industrial world to strive forward with huge advancements. As an educational institution, encouragement and support to research can be provided by establishing a suitable platform for the research community, to interact with each other and to share the knowledge. Having this objective, “7th International Conference on Engineering Research and Innovations- ICERI 2022”, was organized last year which received an overwhelming response.

ICERI 2022 has been planned to provide the same benefits and learning experience to all the participants. Sessions on different domains, key note addresses from eminent professors and opportunity to network with the researchers will help the participants immensely in their research career. This proceeding of the conference has been documented with utmost care. I strongly believe that, this document will stand as a great source of knowledge. With great pleasure and pride, I welcome all the participants and convey my best wishes for ICERI 2022.



Rudra Bhanu Satpathy

Founder & Chief Executive Officer

Institute For Engineering Research and Publication.

On behalf of **Institute For Engineering Research and Publications (IFERP)** and in association with **Terna Engineering college(TEC), Nerul, Navi Mumbai**. I am delighted to welcome all the delegates and participants around the globe to Silicon City College ,India In Association with for the “**7th International Conference on Engineering Research and Innovations**” Which will take place from **22nd & 23rd September 2022**.

It will be a great pleasure to join with Engineers, Research Scholars, academicians and students all around the globe. You are invited to be stimulated and enriched by the latest in engineering research and development while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the reviewing committee, coordinator (IFERP & TEC) and all the people involved for their efforts in organizing the event and successfully conducting the International Conference and wish all the delegates and participants for their virtual presence.

Sincerely
Rudra Bhanu Satpathy



(+91) 44 - 4958 9038



info@iferp.in
www.iferp.in



Rais Tower, 2054/B, 2nd Floor, 'L' West Block, 2nd Ave, Anna Nagar, Chennai, Tamil Nadu 600040, India



Dr. Rajiv Gupta

Co-Convenor, ICERI 2022

It is my great pleasure to present the proceedings of 'Equinox-2022' -7th International conference on Engineering Research and Innovation organized by Terna Engineering College, Nerul, Navi Mumbai in association with Institute for Engineering Research and Publication in virtual mode on 22nd -23rd September 2022.

The main goal of organizing this conference is to provide a platform to disseminate, share and enhance the knowledge of each and every individual in this fast-moving Information Era. It provides an opportunity for those who have a thirst in knowing the present technological developments and also share their ideas. Additionally, this conference facilitates the participants to expose and share various novel ideas. The conference aims to bridge the researchers working in academia and other professionals through research presentations and keynote addresses in current technological trends. Participants get ample opportunities to widen your knowledge and network.

It has been our privilege to convene this conference. Our sincere thanks to all the participants and organizing committee of the conference for making it a grand success.

7th International Conference on
Engineering Research and Innovations

ICERI-2022

Virtual Conference | 22nd & 23rd September-2022



**Keynote
Speakers**

Organized by
Terna Engineering college(TEC), Nerul, Navi Mumbai
In association with
Institute For Engineering Research and Publication (IFERP)



Shri Ashish Chugh

Assistant Director General,
Indian Telecom Service/ITS, Department of Telecom,
Government of India Hyderabad, Telangana, India

Good day to all of you !!!

Welcome to The **EQUINOX - 2022 & 7th International Conference on Engineering Research & Innovation.**

It's a matter of great honour and privilege to be a part of this distinguished gathering where researchers, engineers, academicians, industrialists & practitioners can disseminate their innovations and contemporary research in the ever-evolving field of Engineering, Science & Technology. I am thankful to the organizers for giving me this wonderful opportunity.

I am sure this event is going to foster a culture of greater collaboration & innovative research among academia, industries & government.

I wish for a grand success of this event.



Ir. Dr. Mohammed Alias Yusof

Professor, Department of Civil Engineering
National Defense University of Malaysia,
Sungai Besi Military Camp,
57000 Kuala Lumpur, Malaysia.

Good Day..!

Warm Greetings from Maharishi University, India

With great pleasure I welcome all the eminent dignitaries, keynote speakers, session chairs, presenters and delegates to “**7th International Conference on Engineering Research and Innovations-(ICERI-22)**” on **22nd and 23rd September 2022** in India .

I once again thank the organizers for giving me an honour and opportunity to be part of this distinguished gathering and wish for a grand success of the event.



Prof. Tarik A Rashid

Professor, University of Kurdistan Hewler (UKH)
National Defense University of Malaysia,
Erbil, Iraq.

I am enormously delighted to participate in **EQUINOX-2022**.

7th International Conference On Engineering Research and Innovations-(ICERI-2022) Virtual Conference, which is organized By **Terna Engineering college(TEC)**, Nerul, Navi Mumbai, In association with **Institute For Engineering Research and Publication (IFERP)**.

By and large, in this era, the Internet, the Internet of Things, advanced and smart technologies, and other advancements in sustainable technologies have become the most indispensable parts of our life. I am certain that this conference will provide researchers and scholars with in-depth insight into theoretical and practical backgrounds related to sustainable technologies.

I wholeheartedly appeal to all participants to move forward to conduct further advanced research in Sustainable Technology.

My special thanks to the organizers for their great efforts in making this scientific event remarkable, stimulating, and successful. My thanks also go to all the participants. Wishing you all the best.

7th International Conference on
Engineering Research and Innovations

ICERI-2022

Virtual Conference | 22nd & 23rd September-2022



**Organizing
Committee**

Organized by
Terna Engineering college(TEC), Nerul, Navi Mumbai
In association with
Institute For Engineering Research and Publication (IFERP)

CHIEF PATRON'S



Hon. Dr. Padmasinhaji B. Patil
President, TPCT,(Former Home Minister, Government of Maharashtra & Former Member of Parliament)



Hon. Shri Ranajagjitsinha Patil
President, TPCT,(Former Home Minister, Government of Maharashtra & Former Member of Parliament)

PATRON'S



Hon. Shri Ashok Aher
Trustee, TPCT



Hon. Shri P. T. Deshmukh
CEO, TPCT

CONFERENCE CHAIR



Dr. L. K. Ragha
Principal
Terna Engineering College



Dr. Rajiv Gupta
Professor (E & T)
Terna Engineering College

CONFERENCE COORDINATOR

CONFERENCE CO-CHAIR'S



Dr. Sachin K Kamble
Professor (Mech)
Terna Engineering College



Dr. Vrajesh Maheta
Associate Professor (IT)
Terna Engineering College



Dr. Shaveta Malik
Associate Professor (Comp)
Terna Engineering College



Dr. Raghvendra Upadhyay
Associate Professor (Metx)
Terna Engineering College

ORGANIZING COMMITTEE



Dr. Jyothi Digge
Professor (E & T)
Terna Engineering College



Dr. C. M. Choudhari
Professor (Mech)
Terna Engineering College



Dr Biday Seema Chandrashekar
Professor (Comp)
Terna Engineering College



Dr. Balaji G. Hogade
Professor (Elect)
Terna Engineering College



Dr Khairnar Vaishali Dinesh
Professor (IT)
Terna Engineering College



Prof. Patane Ramling Dyyandev
Associate Professor (GE)
Terna Engineering College



Dr Salunkhe Priyanka Vijay
Associate Professor (Civil)
Terna Engineering College



Dr Salunkhe Satish Sampatrao
Professor (Comp)
Terna Engineering College



Prof. Vyawahare Vikram Shrikant
Assistant Professor (Metx)
Terna Engineering College



Dr. Shilpa Kharche
Professor (E & T)
Terna Engineering College



Dr R R Jaware
Professor (Mech)
Terna Engineering College



Dr Bodade Varsha Hemantkumar
Professor (E & T)
Terna Engineering College



Dr. Manmohan Bhatia
Professor (E & T)
Terna Engineering College



Dr S S Pawar
Professor (Mech)
Terna Engineering College



Prof. Mathur Ravi Rajendranath
Adjunct Faculty (Comp)
Terna Engineering College



Prof. Gaikwad Vishwajit Balaso
Associate Professor (Comp)
Terna Engineering College



Dr. Vijayalaxmi Kadroli
Associate Professor (IT)
Terna Engineering College



Dr. Raskar Sandeep Balu
Associate Professor (AI & DS)
Terna Engineering College



Dr. Preeti Zade
Associate Professor (GE)
Terna Engineering College



Dr. M. A. Trimukhe
Associate Professor (E & T)
Terna Engineering College



Dr. Geetanjali N. Yempalle
Associate Professor (GE)
Terna Engineering College



Prof. Palve Rohini
Associate Professor (GE)
Terna Engineering College



Prof. Khawale Santosh Devidas
Assistant Professor, Project Head, Design
Terna Engineering College



Dr. Siddharth Hariharan
Associate Professor (Comp)
Terna Engineering College



Prof. Jamaluddin Maghrabi
Assistant Professor (Civil)
Terna Engineering College



Dr. Runmoni Gogoi
Assistant Professor (GE)
Terna Engineering College



Dr. Vaibhav R. Pandit
Assistant Professor (E & T)
Terna Engineering College



Prof. Kulkarni Shantanu Laxmikant
Assistant Professor (Metx)
Terna Engineering College



Dr Tayade Rajratna prakash
Assistant Professor(GE)
Terna Engineering College



Dr Arolkar Gauree Anant
Assistant Professor(GE)
Terna Engineering College



Prof. Vishal Bodhale
Assistant Professor (E &T)
Terna Engineering College

Advisory Committee

Dr.S.Sugumaran

Professor, Electronics and Communication Engineering
Vishnu Institute of Technology
Bhimavaram, Andhra Pradesh, India

Dr.Biswajeet Mukherjee

Assistant Professor Grade I
Electronics & Communication Engineering
PDPM Indian Institute of Information Technology
Design & Manufacturing, Jabalpur, Madhya Pradesh,
India

Deepak Tryambak Bornare

Director, Natural Resources Engineering
MIT-Center For Analytical Research & Studie
Aurangabad, Maharashtra, India

Dr Swagata Sarkar

Professor, Artificial Intelligence and Data Science
Sri Sairam Engineering College
Tambaram, Tamil Nadu, India

Dr. Chetan J. Shingadiya

Associate Professor, Computer Engineering
RK University Rajkot, Gujarat, India

Dr. Deepali S. Hirolikar

Professor, Information Technology
PDEA'S College Of Engineering,
Manjari, Pune, India

Dr. Dillip Rout

Associate Professor, School of Computer Science and
Engineering, Sandip University, Nashik, Maharashtra,
India

Dr. Jami Venkata Suman

Assistant Professor, Electronics and Communication
Engineering, GMR Institute of Technology
(Autonomous),
Razam, Andhra Pradesh India

Dr. Jyoti Batra Arora

Mobile communication and Networking
Institute of Chartered Accountants of India
New Delhi, India

Dr. M M Bagali

Dean, Management and Higher Research
IREU Education, Bengaluru, Karnataka, India

Dr. M V Bramhananda Reddy

Professor, Computer Science and Engineering CSE
SAI RAJESWARI INSTITUTE OF TECHNOLOGY
Proddatur, Andhra Pradesh, India

Dr. M. Bakrutheen

Assistant Professor, High Voltage Engineering
National Engineering College, Kovilpatti, Tamilnadu,
India

Dr. MADHUSUDAN

Professor, Electrical and Electronics Engineering Sciences
Siddhartha Institute of Engineering & Technology,
Puttur, Andhra Pradesh, India

Dr. MONANGI MURALI

Professor and Head, Civil Engineering
Raghu engineering college, Visakhapatnam, Andhra
Pradesh, India

Dr. Nagarani. S

Professor & Head, Science and Humanities
Sri Ramakrishna Institute of Technology
Coimbatore, Tamil Nadu, India

Dr. Nethravathi. K

Assistant Professor, Commerce, Jain University
Bengaluru, Karnataka, India

Dr. PradeepV.Jadhav

Professor, Mechanical Engineering
Bharati Vidyapeeth Deemed University College of
Engineering, Pune, Maharashtra, India

Dr. Rahul Vishwanath Dandage

Associate Professor and Program Head, Mechanical
Engineering, MIT-World Peace University, Pune,
Maharashtra, India

Dr. SAGAR.G

Professor, Marketing and General Management
CBSMS, Bengaluru, Karnataka, India

Dr. Suhas Vinayak Patil

Principal, Chemical Engineering, UT Administration of
Dadra & Nagar Haveli and Daman & Diu, Daman & Diu,
West India

Dr. V. Balaji

Professor, Electrical Engineering, Aditya Engineering
College, Surampalem, Andhra Pradesh, India

Dr. V. Manikandan

Principal, Mechanical Engineering
PSN College of Engineering And Technology
Melathediyoor, Tamil Nadu, India

Dr. VANITHA JYOTHI MEESARAPU

Associate Professor, Management Studies
Swarnandhra Institute of Engineering & Technology
Narsapur, Andhra Pradesh, India

Dr.(Mrs.) Dhanamma Jagli

Assistant Professor cum Head, MCA, V.E.S.Institute of
Technology, Mumbai, Maharashtra, India

Dr.Manish Srivastava

Professor and Dean, Management & Commerce
Sanskriti university, Mathura, Uttar Pradesh, India

Dr.N.B.PRAKASH

Associate Professor, Electrical and Electronics Engineering
National Engineering college, Kovilpatti, Tamilnadu, India

Dr.P. Asha

Associate Professor, Computer Science and Engineering
Sathyabama Institute of Science and Technology, Chennai,
Tamil Nadu, India

Dr.R.Jaichandran

Deputy Director Research VMRF and Professor, Computer
Science and Engineering, Aarupadai Veedu Institute of
Technology, Vinayaka Mission's Research Foundation
Chengalpattu, Tamil Nadu, India

Dr.Sunil Devidas Bobade

Professor & Dean academics, Mechatronics Engineering
New Horizon Institute of Technology & Management,
Thane, Maharashtra, India

Dr.Vasanthi Reena Williams

Professor, MBA, Vidya Vikas Institute of Engineering &
Technology, Mysuru, India

G.BHARATHI

Associate Professor, EEE, Shri Vishnu Engg College for
Women, Bhimavaram, Andhra Pradesh, India

Mugdha. A Nandedkar

Professor, Pharmaceutical Chemistry, GS Moze College of
Pharmacy,, Pune, Maharashtra, India

Prof.S.Ravi Chand

Professor, Electronics & Communication Engineering
Nalla Narasimha Reddy Education Society's Group of
Institutions, Hyderabad, Telangana, India

SANTHOSHKUMAR R.

Assistant Professor, Electrical and Electronics Engineering
SRI RAMAKRISHNA ENGINEERING COLLEGE,
Coimbatore, Tamil Nadu, India

Smt T.Satya Nagamani

Assistant Professor, Cloud Computing
SIR CR Reddy College of Engineering
Eluru , Andhra Pradesh, India

V. Agalya

Associate Head R&D, Electrical Engineering
New Horizon College of Engineering, Bengaluru,
Karnataka, India

National Advisory Committee

Dr. Hanumat Sastry G.

Professor In Charge Research
Computer Science
University of Petroleum and Energy Studies
Uttarakhand, India

Dr. sudhakar umale

Associate Professor (CAS) & Ex Head
Mechanical Engineering
Sardar Patel College of Engineering
Andheri, Mumbai, India

Dr. T G BASAVARAJU

Professor and Head
Computer Science and Engineering
Government Engineering College
HASSAN, Karnataka, India

Dr.GIRIDHARI TIWARI

Professor
Civil Engineering
BKIT
Bhalki, Karnataka, India

Scientific Committee

Dr.P. Chenga Reddy

Assistant Professor, Thermal engineering
SCSVMV, Kanchipuram, Tamil Nadu, India

BHAZIRIA

Assistant Professor, communication systems
Sri Ramakrishna College of Engineering and
Technology, Coimbatore, Tamil Nadu, India

Dr D Sathish

Assistant Professor, Mechanical Engineering
Sri Ramakrishna Institute of Technology
Coimbatore, Tamil Nadu, India

Dr S Sudheer Mangalampalli

Assistant professor senior grade 1
computer Science and Engineering
VIT AP University, Amaravati ,Andhra
Pradesh, India

DR. ANIMESH KUMAR SHARMA

Associate Professor, Mathematics
Raipur Institute of Technology
Raipur, Chhattisgarh, India

Dr. B. Naresh Kumar Reddy

Assistant Professor, Electronics Systems & Automation, Digital University of Kerala, Trivendrum, Tamil Nadu, India

Dr. Debirupa Mitra

Assistant Professor, Chemical Engineering BITS Pilani Hyderabad Campus, Hyderabad, Telangana, India

Dr. DURGA PRASAD

Assistant Professor, Mechanical Engineering RV Institute of Technology and Management, Bengaluru, Karnataka, India

Dr. Ghanapriya Singh

Assistant Professor, Electronics Engineering National Institute of Technology Uttarakhand Uttarakhand, India

Dr. J. Rajesh Babu

Associate Professor, Mechanical Engineering K.L.N.College of Engineering, Pottapalayam, Tamil Nadu, India

Dr. K.M. Ravi Eswar

Assistant Professor, Electrical and Electronics Engineering, SRM Institute of Science & Technology, Kattankulathur, chennai, India

Dr. M. Ravindra

Assistant Professor, Electrical and Electronics Engineering, Aditya College of Engineering Surampalem, Andhra Pradesh, India

Dr. Mohd Naved

Program Leader, Artificial intelligence & Machine Learning, AIBS, Amity University Noida, Uttar Pradesh, India

Dr. P. KUPPUSAMY

Associate Professor, Computer Science and Engineering, VIT-AP University Amaravati, Andhra Pradesh, India

Dr. R. THIRUNAVUKKARASU

Assistant Professor, Thermal Engineering Sri Ramakrishna Institute of Technology Coimbatore, Tamil Nadu, India

Dr. Rajkumar Bhimgonda Patil

Assistant Professor, Mechanical Engineering Pimpri Chinchwad College of Engineering Pune, Maharashtra, India

Dr. Ranjeet Singh

Assistant Professor, Education, Shah Satnam Ji College of Education, Haryana, India

Dr. S. PARTHIBAN

Associate Professor, Mathematics Vignan's Foundation for Science, Technology and Research, Vadlamudi, Andhra Pradesh, India

DR. SHAIKH RAJU SHAHABOUDDIN

Assistant Professor, Physics Shri Guru Buddhiswami Mahavidyalaya Purna, Maharashtra, India

Dr. Vishwanath K Patel

Assistant Professor, Mechanical Engineering Government Engineering College, Bhuj, Gujarat, India

Dr. Deepak K.B

Associate Professor, Mechanical Engineering Vivekananda College of Engineering & Technology, Puttur, Karnataka, India

Dr.P.VETRI VELAN

Associate Professor, Signal & Image Processing
P S G Institute of Technology and Applied
Research, Coimbatore, Tamil Nadu, India

Dr.Shanthi M.B

Associate Professor, Computer Science and
Engineering, CMR Institute Of Technology
Bengaluru, Karnataka, India

Mohamed El Malki

Vocational Teacher, Physics, Mohamed First
University, Oujda, Morocco, North Africa

Mr. Shivkumar Ramanna Chandey

Assistant Professor, Computer Science &
Information Technology, Nirmala Memorial
Foundation College of Commerce & Science
Kandivali East, Mumbai, India

N.Gopinath

Assistant Professor, Computer Science and
Engineering, Sri Sai Ram Engineering College
Chennai, Tamil Nadu, India

NARASIMHA RAO M V A L

Assistant Professor, Management Studies
K L Deemed to be University, Vaddeswaram,
Andhra Pradesh, India

S.SUDHARSAN

Assistant Professor, Manufacturing
Sri Ramakrishna Institute of Technology
Coimbatore, Tamil Nadu, India

Siva kumar.A

Assistant Professor, computer Science and
Engineering, ACE Engineering College
Ghatkesar, Hyderabad, India

SURBHI SAROHA

Assistant Professor
Department of Computer Science, Meerut College
Meerut, Uttar Pradesh, India

ZOHAIB HASSAN SAIN

MS Quality Management Certified Trainer
Quality Department, Superior University
Lahore, Pakistan, India

Shweta Sunil Kadam

lecturer, Agricultural Engineering
Marathwada Institute of Technology
Aurangabad, Maharashtra, India

Table of Contents

1 Planogram Automation and Shelf Space Planning: The Need of the Hour	
Abel Thomas Koshy.....	1
2 Improved Techniques of Direct Torque Control System for IM Using Minimum Voltage Vector Error	
Ashishchandra O. Wasnik, Prof.Prajakta Vaidya.....	2
3 A Review on Non-isolated DC-DC Converters for Electric Vehicle Applications	
Nayan J. Kotmire, Dr. A.B. Kakade.....	3
4 Characterization of Fluid Flow in Helical Coils for Newtonian and Non-Newtonian Fluids	
Dr. Pawar Sandipan Shankar.....	4
5 Analysis of Power System with Distributed Generation for Allocation of Hybrid Type Superconducting Fault Current Limiter	
Sandeep Ratnadeep Kadam, Dr.A.M.Mulla.....	5
6 GLCM and PCA Algorithm Based Watermarking Scheme	
Sakshi Garg, Dr. Mala Kalra.....	6
7 A Proctored Interface for the Conduction of Online Examinations	
Jatin Dandelia, Ruthwik Rao, Veerabh Mahadik, Athreya Vijayaraghavan, Anuradha Jadiya.....	7
8 Hybridization of KF and GA as a Predictive Algorithm for Reduction of Power Consumption in a Cloud Computing Data Centre	
Afolabi Rotimi.....	8
9 Air Duct Inspection Robot	
Thakur Tuba, Daniyal Elaskar, Aman Shaikh, Nabil Kable.....	9
10 Fish Farming using Smart Monitoring System in Biofloc Technology	
Rohit Mane, Siuli Das, Bhavesh Digey.....	10
11 Effect of modifying bowl geometry for IC engine fuelled with diesel and Bio fuels - Review	
Bhavesh Pathak, Nikul Patel.....	11
12 A Review on Techniques to mitigate NOX in CI Engine fueled with various biodiesel blends	
Asfakahemad A Shekh, Dr Nikul Patel.....	12
13 Comprehensive review on recent MAC protocols in Wireless sensor network	
Mr. Shankar Madkar, Dr. S.A. Pardeshi, Dr. M.S. Kumbhar.....	13
14 Parametric Analysis of Copper Nanofluid Based Mixture For the Improvement of Heat Transfer	
Sharad P. Bargat, Dr. S. K. Kamble, S. P. Gurav, A. A. Palekar, S. D. Harad, V. S. Chingale, K. S. More.....	14

15 Prediction of Physical and Mental Health Disease using Machine Learning (Web Application)	
Mrs. Shweta Ashtekar, Gauri Shetti, Gautami Sane, Rachna Tiwari	15
16 Enriching Employee Experience through HR-Bot-based e-HRM: A Study in Aditya Birla Fashion & Retail Ltd	
Syed Rizwan Naqvi, Dr. Puja Sareen, Dr. Tanuja Sharma.....	16
17 Background Noise Suppression Using Deep Learning in online mode Teaching Learning	
Dr. Shrishailappa Patil, Ashwini Patil.....	17
18 Laboratory Study of crumb rubber as an additive for bitumen modification in road construction	
Samson Olukayode Olopade, Olayinka Olawale Olarewaju	18
19 Factors Influencing Informal Entrepreneurship: Exploring Home Based Women Entrepreneurs	
Sangati Sneha, Shwetha.M.Krishnappa	19
20 Experimental Investigation on Strength of RC Beam using Geopolymer Concrete and adopting Bubble Deck method as a Green Technology	
Sanjay K. Bhadke, Dr Tushar G. Shende, Dr. Surendra.R. Kukadapwar	20
21 A Machine Learning based Optimal Analysis of Cyber Crime Data	
Swati Sharma, Varsha Sharma	21
22 Parametric Study of ECM while machining EN 31 Tool Steel Using Taguchi Method	
Pritam Pain, Goutam Kumar Bose	22
23 Current Issue on Supply chain Knowledge Management for future research: A Literature review	
Swapnil Ramdas Nimbhorkar	23
24 A secure safety monitoring framework for Deep Seabed Mining	
Aman Ahmad Ansari, Bharavi Mishra, Poonam Gera	24
25 Deep Learning Based Skin Tumor Detection	
Ayushi jain	25
26 Dam Failure Analysis and Flood Inundation Mapping For Harangi Reservoir Karnataka	
Smita Patil	26
27 Introduction To Deep Learning And its Related Case Studies	
Sakshi, Dr. R. Girija.....	27
28 A Comprehensive overview of MNIST and EMINIST datasets for Handwritten Digit and Character Recognition	
Mitali Chugh	28
29 Insights on Cyber Attacks and Potential solution for cybersecurity in the Era of COVID 19	
Mitali Chugh	29

30 State-Of-The-Art of zinc oxide nanoparticles-Synthesis and technological applications.	
Basilio José Augusto José, Mahendra Devidas Shinde.....	30
31 Impacts of Intensive and Non-Intensive Recreation/Tourism Based Reclamation Strategy in Abandoned Mines	
Debasmita Basu, Smriti Mishra	31
32 Planning and Implementation of Tourism Evaluation Tool to Town Planning and Infrastructure for Competitive Place-Making	
Aditi Nag, Smriti Mishra	32
33 A Study on Collaborative Learning and Identification of Expressions of Learners to Improve the Performance of Learners	
Mr.Vivek Patil, Dr. Sajidullah Khan, Dr. Amol Potgantwar	33
34 Performance Study of SBR with the Evaluation of Recovering Phosphorous and Nitrogen from Domestic Wastewater in Puducherry Region	
Aishwariya R.P, Saravanane.R, Govindaradjane.S	34
35 Design and Analysis of Opposed Piston Compressor	
Lokesh Pradhan, Ajay Anand, Ashutosh Singh, Amit	35
36 Agile Project Management Awareness status of Final year students of Engineering Graduation Programme for Mumbai University	
Saurabh Vilas Kane, Dr Prasad Jeevan Pathak	36
37 Influence of geosynthetic reinforcement on load settlement behaviour of soft soil for flexible pavement application	
Mir Sohail Ali, Dr. M. S. Dixit	37
38 Human Fall Detection Using Gaussian Mixture Model and Fall Motion Mixture Model	
K Durga Bhavani, M Ferni Ukrit.....	38
39 Improving the Pavement performance by incorporating Geocell reinforced granular base with Basal reinforcement	
Quadri Syed Ghausuddin, Dr. M.S. Dixit.....	39
40 Automated Short Answer Evaluation using Natural Language Processing and Lemmatization	
Arul Shalom A.....	40
41 Rational Bubble Testing and Forecasting Bitcoin Price during Covid-19 Pandemic	
Chavan Rajkumar Dhaku, Dr. A. Senthil Kumar.....	41
42 Literature review on some novel Stenographic techniques which are based on the spatial as well as frequency domain concepts of watermarking	
Saikat Bose.....	42

43 Project Resource Planning for application of NATM Technology in Pune-Metro	
Kadam Harshad Shahaji.....	43
44 Neural Network Modelling for Shear Strength determination of soil	
Rahul Ramdas Wankhade	44
45 Optimal Angle Control Strategy for Switched Reluctance Motor Drive	
Mr. D.A. Shahakar	45
46 An Application of Analytical Hierarchy Process- A Computational Approach to Financial Asset Selection	
Divyaansh Verma.....	46
47 Role of Denoising using CBDNet and UNet for Biomedical Imaging	
B. Sachin Aditiya, Harishchander Anandaram	47
48 A Review on Recent Trends of Denial of Services (DoS) attack in Network Security	
Lovepreet Kaur, Dr. Harmandeep Singh.....	48
49 Future Skills Prime: An Initiative for Capacity Building and Skills Acquisition in the Age of Intelligent Technologies by Government and Indian Industry	
Umang Kaur Preet Sahiwal, Dr. Vijit Chaturvedi	49
50 Neighborhood livability index development and residential land value incorporation	
Saman Ambreen, Rajan C.Sinha, Binoy B V.....	50
51 Smart Device and Internet of Things (IoT) Convergence technology trends	
Ria Kohli	51
52 A fake news detection model based on classification techniques	
Danish Ajazi, Dr. Anil Kumar Mahto, Dr. Tabrez Nafis	52
53 Genomic data science and COVID -19 Genome Analysis using Bio python	
Mansi, Dr Vishwajeet Goswami, Dr Aashima Bangia.....	53
54 Autonomous Car for Indian Terrain	
Prof. St. Patil, Aryan Pravin Aher, Aarushi Bhate, Adnan Shaikh, Sandhya Vinukonda.....	54
55 Selection of optimal Additive Manufacturing Technology for Polymer Composite	
Praveen, Dr.Rajeev Saha, Dr.Sandeep Grover.....	55
56 Prediction of Human Emotions by Neural Oscillations	
Payal Mahajan, Dr Anjali Gautam, Dr Lisna P C	56
57 Video-Based Person Re-Identification using Semi-Coupled Dictionary Learning with Relaxation Label Space Transformation	
Sree Sankar.J, Jayalakshmi P K, Sreedeeep Krishnan, Ranjeesh R Chandran	57

58 Multi Sensor Data Fusion based Parallel Manipulator with Iot monitoring employing Machine Learning	
Shreyanth S	58
59 Multimodal recognition using dominant region of imperfect face and gait cues using Median-LBPF and Median-LBPG based PCA followed by LDA	
Santhi N, Annbuselvi K, S. Sivakumar	59
60 Predictive Model on Fake News Detection using Supervised Machine Learning Algorithms in Real-Time	
Dr. Bechoo Lal, Dr.Chandrahauns R Chavan	60
61 Design of a charging station for batteries in electric vehicles	
R. Santhoshkumar, Dr.S. Suresh	61
62 Strength and Weakness of Design and Build Scheme in the Procurement of Government Projects	
Ni Komang Armaeni, Dewa Ketut Sudarsana, Anak Agung Diah Parami Dewi, G.A.P. Candra Dharmayanti, Ngakan Ketut Acwin Dwijendra	62
63 Construction Management Control in the Covid-19 Period Case Study: General Hospital Project in Golo Bilas Village, Komodo District, Indonesia	
I Komang Agus Ariana, Ngakan Ketut Acwin Dwijendra, Ngakan Made Anom Wiryasa, Anak Agung Gde Agung Yana	63
64 Pornographic Image Sensor Information System Based on Android Using Convolutional Neural Network Method	
Ahmad Cahyono Adi, Renny Puspita Sari, Syahru Rahmayuda, Ilhamsyah, Ferdy Febrianto	64
65 Development of Sustainable Biobricks Using Agro wastes	
Prof. D Ashwini, Mr. Pujith H C, Ms. Nishchitha Y, Mr. Kiran Kumar M, Mr. Reethan U	65
66 Prediction of Health of the Post Harvested Pomegranate Fruits Using Magnetic Resonance Imaging and Machine Learning	
Surekha Yakatpure, Dr. Krupa Rasane, Dr. K Dhinesh Babu	66
67 Selection Combining Diversity for Fisher Snedecor Composite Fading Model under Interference	
Anjali Singh, Hari Shankar	67
68 Solar Cell Trends and the Future: A Review	
A. Garga, R. K. Ratnesha	68
69 Fabricating a Raman Spectrometer	
Pankaj Upadhyay, Pobbti. Bhaskar	69
70 Soliton propagation and its Applications	
Ankita Bhatt, Udit Kotnis	70
71 Cascaded Multilevel Inverter – Based 15 level Multilevel Inverter with Reduced number of Switches for PV Applications	
Mrs.M.Anusuya, Dr.R.Geetha	71

72 Predictive Maintenance of Induction Motors Using IOT (cayenne)	
Keerthiga, T.V.Vanitha	72
73 Design of Low Power and High Speed FinFET Based Multiplexers	
Sadem Sai Kiran, Udumula Rohini, Vagu Ganga Sai Vivek, Vanapalli Keerthi, Palavalasa Saritha, Jami Venkata Suman... 73	
74 Design and Performance Evaluation of FinFET Based Full Adder	
Reddy Venkatesh, Ronanki Harika, Talagapu Ankitha, Thodupuri Yogesh, Yarlagadda Anvitha, Jami Venkata Suman..... 74	
75 A Study of Relationship of Demographic Factors with Customer Satisfaction of Electric Vehicles Usage in India Using Chi-Square Techniques	
Ayush Kumar Singh, Dr. Udit Chawla, Sarabjot Singh, Swecha Ram	75
76 GA-RSM Modelling and Optimization for Enhancement of Tensile Strength of Fibre Reinforced composites	
Parth Patpatiya	76
77 An analysis of various machine learning techniques for predicting diabetes in its early stages	
Putta Durga	77
78 Property Registration Using Blockchain	
Dr. S.T Patil, Sushil Waghmode, Zaid Sayed, Shubham Teli, Saurabh Waghmare	78
79 A Study on Comparative Analysis of Two Stochastic Models for Single Unit footwear Machine	
Rinku.....	79
80 Plant Disease Detection Using Machine Learning	
Sumendra Nath Singh	80
81 Hate speech detection using machine learning	
Mansi Tomar	81
82 An Optimized Deep learning Method for Detecting Covid-19 using Ultrasound Images	
Shailesh Sharma, Brajesh Kumar Singh	82
83 Security and privacy aspect of AI and IoT in Healthcare Industry: A Comprehensive Review	
Dr. Neeraj Chugh, Dr. Mitali Chugh.....	83
84 Impact of Anomaly on Performance in IoT enabled Smart City, A Review	
Dr. Neeraj Chugh, Dr. Mitali Chugh.....	84
85 Study the effect of Green Nanoparticles on Biomedical waste – biomedical moulding sand properties for casting applications	
Prasad Raikar	85
86 Lung Cancer Detection using Machine Learning Technique	
Vipul Parmar, Lavkush Sharma, Brajesh Kumar Singh.....	86
87 Experimental and Numerical study on Socketed Pile in Soft Rock	
Vedprakash Maralapalle, Dr. Ramachandra Hegde	87

88 Economic Analysis Of Inflation: The Regime Switching Approach	
Jai Prakash Pandey, Dr. Gurpreet Kaur.....	88
89 An Analytical Study of Digital Healthcare: Issues and Challenges	
Azhar Eqbal, Md Tabrez Nafis, Syed Mohd Faisal Malik.....	89
90 A Fuzzy Based Optimization Approach and a Deep Learning Classifier for Parkinson’s Disease Prediction	
Sabeena.B, Dr.S.Sivakumari.....	90
91 A Systematic Review on Machine Learning based IoT Applications in Healthcare	
Khuaish Mirza, Md Tabrez Nafis, Syed Mohd Faisal Malik.....	91
92 Real Time Indoor CO₂ Detection by Using Thin Film Nanocomposite	
Tuan Diny Daud Aiman Tuan Anuar, Khadijah Ismail, Murniati Syaripuddin, Mohd Salman Mohd Sabri, Siti Nooraya Mohd Tawil.....	92
93 Design and verification of AMBA AXI4 for high performance and SOC integration	
Y.Gopi Krishna, Ramaswamy.T, SPV.Subba Rao.....	93
94 Adaptive Rate Control for Wireless Communication System Using Deep Reinforcement Learning	
M V K Gayatri Shivani, Dr S P V Subba Rao, Dr C N Sujatha.....	94
95 Classification of attacks and Detection of attack using Learning models for IoT Mechanism	
Vikas Sejwar, Mohit Agarwal.....	95
96 Background Noise Suppression in hearing aids for online education Using Deep Learning	
Dr. S. T. Patil, Ashwini Patil, Manjunath Patil.....	96
97 Enhanced Framework for Software Defined Wireless Body Area Network Technology	
Shanmugavadivel G, Valarmathi S.....	97
98 Resource Allocation for Routing Protocol Vehicular Communication in Wireless Networks	
Dhivya G, Sridevi A.....	98
99 Malicious TCP/IP packets detection using anomalous TTL values with the help of SNORT	
Geetika Sharma.....	99
100 A Novel approach of True Random Number Generation using Tree based Interleaver	
Prateek Agnihotri.....	100
101 AI based Reliable and secure data transfer in Wireless Networks	
Padam Vamsi VijayaKrishna, Nistala Sravya, Pattela Tagore Sai Gopi, Jaddu Prema Sai, P. Kalyanchakravarthi.....	101
102 Designing of Mimo Antenna Using Meta Surface for 5G Applications	
N.Gowthami, M.Chandru, K.Jyothi Swaroop, J.Chiranjeevi, Dr.TVS Divakar.....	102

103 Parkinson's Disease Tremor Suppression using Gyroscopic Effect	
Abhishek S. Bandsode, Archana G. Thosar	103
104 Design & Analysis of Permanent Magnet Linear Generator using FEM Based Software	
Rushikesh Nakure, Archana G. Thosar	104
105 Low Power Electronic Transformer Design for Medium Voltage Application	
Akash More, Archana G.Thosar, Uday Sanvatsarkar, Santosh Bhong	105
106 Estimation of Stray Losses near the Bushing Region of Transformer Tank	
Aishwarya Rajendra Giri, Archana G. Thosar	106
107 Design and Operation of 40kW Bidirectional Fast Charger and Wide Voltage Range of EV	
Shreya D. Hiradeve, Archana G. Thosar	107
108 Experimental Investigation on Pile in Rock	
Geetanshu Chhajed, Dr. Archana G. Thosar	108
109 A SENS Score of Rheumatoid Arthritis Detection using Customized Convolutional Neural Network	
Prof Mate G.S., Dr. A.N. Paithane, Dr. N.M. Ranjan	109
110 Machine Learning and Temporal Graph Networks for Protein Classification Based on Amino Acid Sequencing	
Aiswarya K, Harishchander Anandaram.....	110
111 IoT-Cloud Architecture for Smart City with LPWAN-5G Connectivity- A Study on Smart Meter Reading Data Acquisition	
A.K. Damodaram, Dr. L. Venkateswara Reddy	111
112 WLAN Microstrip Patch Antenna: A Review	
Ujjawal Tomar, Subodh Kumar Tripathi.....	112
113 Simulation Of WLAN Triple Band Microstrip Patch Antenna Using HFSS	
Ujjawal Tomar, Subodh Kumar Tripathi.....	113
114 Comparison of fluoride removal efficacy of D. sissoo based biomass and IRA400Cl ion exchange resin: Batch study for synthetic groundwater	
Saurabh Joshi, Somen Jana	114
115 Design of quad slotted patch antenna at 2.4GHz with DGS	
M. Jeevani, P. Murali Krishna, P.N.H. Gowtham, J. Raja, P. Akhil, A. Sudhakar	115

7th International Conference on
Engineering Research and Innovations

ICERI-2022

Virtual Conference | 22nd & 23rd September-2022



Abstracts

Organized by
Terna Engineering college(TEC), Nerul, Navi Mumbai
In association with
Institute For Engineering Research and Publication (IFERP)

Planogram Automation and Shelf Space Planning: The Need of the Hour

Abel Thomas Koshy

Department of Computer Science and Engineering, School of Engineering and Technology, Christ (Deemed to be University), Bangalore, India, abel.koshy@mtech.christuniversity.in

Dr. Ramesh Vatambeti

Department of Computer Science and Engineering, School of Engineering and Technology, Christ (Deemed to be University), Bangalore, India, ramesh.vatambeti@christuniversity.in

Abstract

An organized shopping environment appeals customer, prevents stock outs, drives inventory productivity, reduces operating costs and significantly increases the performance of the store. Optimizing shelf space in planograms have been a matter of concern and study for a significant amount of time. In fact, the orientation in which various products are assigned and allocated in a shelf plays a crucial factor is influencing the

sales of that particular product. The orientation of placement of a product is termed as facing and each facing is the indication of each unit of the product on the shelf. With new technology (e.g., planning software, data availability) and the effects of various research domains, the needs for shelf space planning in reality are expanding (e.g., marketing, food chemistry, logistics). These parameters should be carefully examined while developing shelf space models in order to deliver helpful solutions. Based on the tenure of employment at a company that focuses on creating software solutions for retailers to curb real-world problems, a great deal of experience and exposure was picked up that enabled in identifying key findings for the paper. The purpose is to share insights from experience and highlight previously undetected issues so that both parties, merchants and researchers, may receive useful knowledge while simultaneously improving their job. Finally, certain relatively unnoticed but critical elements of shelf space distribution are discussed, indicating future study directions.

Index Terms

Planogram Automation, Operations research, Retail, Shelf space optimization, Product allocation, Assortment Optimization

Improved Techniques of Direct Torque Control System for IM Using Minimum Voltage Vector Error

Ashishchandra O. Wasnik

Research Scholar, Department of Electrical Engineering, G H Raisoni College of Engineering, Nagpur.
Ashishchandra.wasnik.mtechps@ghrce.raisoni.net

Prof. Prajakta Vaidya

Professor, Department of Electrical Engineering, G H Raisoni College of Engineering, Nagpur.
Prajakta.vaidya@raisoni.net

Abstract

Conventional Direct Torque control (CDT) for Induction Motor (IM) faces substantial harmonic distortion, heavy contemporary harmonic distortion (HD), and constant switching frequency. lately, a few new DT methods had been proposed to resolve the above problems, but they have been afflicted by ambiguous idea, in depth computing, with negative tension. To further optimize effectiveness, this venture proposes the DT approach, which is based on the shortest Voltage Vector (VV) errors. The vector manage of an Induction Motor (IM) is totally based on a dynamication. Torque, stator flux, and velocity of the induction motor power become tremendously variable under temporary and continuous working states. Against diferent induction speed capacit  methods like pole trade, fency version, variable rotor resistance, variable stator voltage, regular The propoed DT approach ha validated to gain superior stable-kingdom performance. preserving TDT's speedy dynamic reaction. In further, the proposed technique employs a proportional-integral type of torque regulator that could attain a nearly constant average switching frequency over 's entire pace variety with a specific load.

Keywords

DT Control, MVVE, DR (dynamic responses), ripple torque, ASF (average-switching- frequency).

Knowledge to Empower

A Review on Non-isolated DC-DC Converters for Electric Vehicle Applications

Nayan J. Kotmire

Assistant professor, Department of Technology, Shivaji University, Kolhapur,

Dr. A.B. Kakade

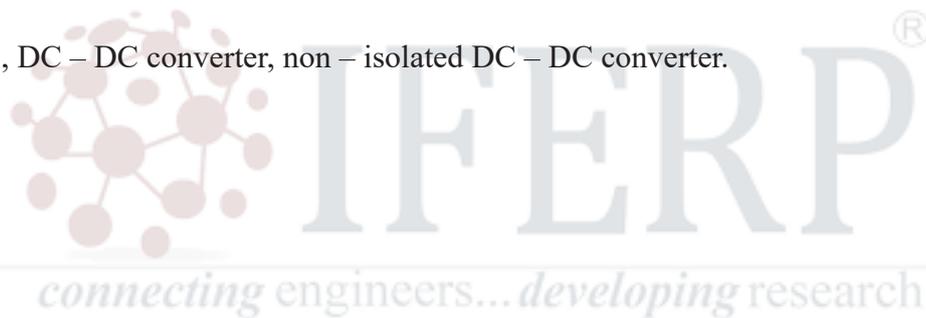
Associate Professor, Rajaram Babu Institute Of Technology, Rajaram Nagar, Islampur

Abstract

In transport Energy consumption by fuel takes place. There is need to reduce greenhouse emission and fuel dependency. Use of Electric vehicle gives pollution less environment all over the world. Different DC-DC converters are available for the charging of electric vehicle. DC-DC converters are studied in literature. From the available DC- DC converters a suitable non-isolated DC –DC converter is selected for electric vehicle.

Keywords

Electric vehicle , DC – DC converter, non – isolated DC – DC converter.



Characterization of Fluid Flow in Helical Coils for Newtonian and Non-Newtonian Fluids

Dr. Pawar Sandipan Shankar

TPCT's College of Engineering, Nerul, Navi Mumbai, University of Mumbai

Abstract

Heat exchanger is a device which is used widely in industry for transfer of heat from one fluid stream to another fluid stream. It is proved by several investigators that heat transfer rate in helically coiled heat exchanger is greater than straight tube heat exchanger due to complex secondary flow motion induced inside the coil. However, characterization of fluid flow in helical pipe/coil is found to be critical as compared to fluid flow in straight tube which is characterized by using critical Reynolds number. In this paper, correlations developed by few investigators for demarcation of hydrodynamic fluid flow in helical pipes using critical Reynolds number or Dean number are presented. It is seen that all these correlations proposed are applicable only for Newtonian fluids except new dimensionless number 'M' invented by Mujawar and Rao for demarcation of flow in helical coil is applicable for Newtonian and non-Newtonian fluids to all practical coil curvature ratios. The new dimensionless number as per earlier experimental work carried out by author of this paper is found to be significant for designing of helically coiled heat exchangers used in process industry within acceptable range.

Keywords

Heat exchanger, helical coil, straight tube, critical Reynolds number, M number.

Knowledge to Empower

Analysis of Power System with Distributed Generation for Allocation of Hybrid Type Superconducting Fault Current Limiter

Sandeep Ratnadeep Kadam

College of Engineering, Phaltan, Maharashtra, India, Sandeepkadam300@gmail.com

Dr.A.M.Mulla

Daulatrao Aher College of Engineering, Karad, Maharashtra, India, ammaityp@gmail.com

Abstract

Different types of fault occur in power system. Each type of fault have different fault current values. The placement of the hybrid type superconducting fault current limiter (HSFCL) can be utilized to accommodate the increasing integration of distributed generations (DGs) in a power system. The installation of DGs in a power system can affect the power flow and the fault current patterns. Substantial changes in fault currents can cause coordination problems among the overcurrent relays. SFCL placement is a possible approach for accommodating the DGs by locally limiting the fault currents resulting from the DGs, while maintaining the existing relay settings. To overcome all the existing drawbacks, this research work focus on a novel optimal size of hybrid type superconducting fault current limiters with power system protection and impacts of distributed generation (DG).

Index Terms

Hybrid type superconducting fault current limiter, overcurrent relay, distributed generation, fault current, voltage deviation, power loss.

GLCM and PCA Algorithm Based Watermarking Scheme

Sakshi Garg

Research Scholar, CSE, NITTTR Chandigarh, Sakshidewanz@gmail.com

Dr. Mala Kalra

Assistant Professor, NITTTR Chandigarh

Abstract

Digital watermarking is seen as an effective way to prevent illegal distribution of content users. In recent years, digital watermarking has been intensively studied to achieve this goal. Digital watermarking is the act of hiding a message related to a digital signal (i.e., an image, song, video) within the signal itself. In general, a digital watermark is a code that is embedded inside an image. This research work suggests a novel framework for Image Watermarking Technique to achieve better image quality. In this work, DWT, GLCM and PCA techniques are used for watermark embedding and extraction. The watermark is embedded into an original image with OS- Extended Learning Machine Algorithm. GLCM and PCA algorithms, dynamic scaling factor are used to efficiently embed the watermark in the original image. During extraction process, the wavelet and textural features of the watermarked image are extracted and input to the Inverse OS ELM to extract the watermark. Performance parameters- PSNR, MSE, BER, and Correlation Coefficient are compared with existing work to prove the efficiency of the proposed work. This work is implemented in MATLAB software.

Keywords

DWT, GLCM, PCA, PSNR, MSE, BER, Scaling Factor

Knowledge to Empower

A Proctored Interface for the Conduction of Online Examinations

Jatin Dandelia

Electronics and Telecommunication Department, VES Institute of Technology, Mumbai, India

Ruthwik Rao

Electronics and Telecommunication Department, VES Institute of Technology, Mumbai, India

Veerabh Mahadik

Electronics and Telecommunication Department, VES Institute of Technology, Mumbai, India

Athreya Vijayaraghavan

Electronics and Telecommunication Department, VES Institute of Technology, Mumbai, India

Anuradha Jadiya

Electronics and Telecommunication Department, VES Institute of Technology, Mumbai, India

Abstract

Online education delivery has become the standard in today's times. As with all things, there is a rising amount of nefarious activity in the form of dishonest methods such as cheating, copying and generally betraying the fair ideals that every examinee should follow. There is also the consequence of the results of these exams not having any employable validities. To tackle this, the proposed study proposes an online proctoring system that eliminates the potential for student's to engage in illicit behaviour during a test.

connecting engineers... developing research

Hybridization of KF and GA as a Predictive Algorithm for Reduction of Power Consumption in a Cloud Computing Data Centre

Afolabi Rotimi

Department of Electrical & Communication Engineering in Covenant University, Ota, Nigeria

Abstract

Data Centre (DC) has becoming a major and important component of a cloud computing to meet up with the rapid increase in the demand of telecommunication services. However, the cost of maintaining a DC is very high due to high power consumption of the unit in a telecommunication industry. The situation is further exacerbated in a country like Nigeria where there is highly unstable power supply from the national grid. Kalman Filter (KF) which is one of the energy consumption optimization technique through power consumption prediction model used to reduce the power consumption is characterized with high prediction error due to random selection of KF parameters' value during the prediction period. Hence, in this paper, Hybridization of KF and GA for power reduction through accurate power consumption prediction is proposed. Data were collected from Four different servers in Nigeria, named BSC 13, BSC 14, RNC 05 and RNC 06 using power analyzer, multimeters and thermometer. The historical assessment of data collected were carried out for the DC for two years (January to December of 2019 and 2020). The GA was used to obtain best possible values for the KF parameters and KF was then used to predict the future power consumption value on hourly basis for each day of the week. The proposed PCoKFGA model gave better performance with accurate prediction, higher power usage effectiveness and lower energy consumption than the existing KF model. Therefore, the PCoKFGA model proposed would be most useful where accuracy in prediction is of utmost importance, and for run-time application.

Air Duct Inspection Robot

Thakur Tuba

Terna Engineering College, Nerul, thakurtuba@gmail.com

Daniyal Elaskar

Terna Engineering College, Nerul, daniyalelaskar50@gmail.com

Aman Shaikh

Terna Engineering College, Nerul, amanshaikh@ternaengg.ac.in

Nabil Kable

Terna Engineering College, Nerul, nabeelkable10@ternaengg.ac.in

Abstract

Manual period maintenance and cleaning of HVAC duct systems are time-consuming and tedious chores. In some circumstances, it results in unanticipated accidents and additional costs. Furthermore, the cleaning techniques might be harmful to HVAC cleaning specialists, particularly in hazardous locations such as hospitals, medical facilities, and electronic component manufacturing. Given that robotics aspires to replace humans in harmful occupations, we focused our investigation on determining the viability of incorporating telerobotic solutions into HVAC duct inspection procedures. The project is separated into two sections: the control panel section and the robot section.

Index Terms

Air Quality, HVAC, Robotics, Smart Duct Inspection

connecting engineers... developing research

Fish Farming using Smart Monitoring System in Biofloc Technology

Rohit Mane

Department of Instrumentation Engineering Ramrao Adik Institute of Technology D Y Patil Deemed to be University, mane.rohit11@gmail.com,

Siuli Das

Department of Instrumentation Engineering Ramrao Adik Institute of Technology D Y Patil Deemed to be University, siuli.das@rait.ac.in

Bhavesh Digey

Department of Instrumentation Engineering Ramrao Adik Institute of Technology D Y Patil Deemed to be University, bhavesh.digey@rait.ac.in

Abstract

By 2050, the global population is supposed to exceed 9.6 billion people. As demand for animal protein rises year after year, it will be a struggle to deliver high-quality protein while protecting natural resources for future generations. Aquaculture, in this context, plays a critical role in boosting health by providing animal protein while also creating jobs and economic prosperity. Biofloc Technology (BFT) is being hailed as a new "blue revolution" since nutrients may be recycled and reused in the culture medium indefinitely, reducing or eliminating the requirement for water exchange. The suggested approach aims to create a safe and secure environment in which fish pond owners and aquatic planters can produce high-quality fish by maintaining consistent water levels in the fish tank. Animal health is affected by water quality. The water flow in fish ponds exemplifies the importance of carefully monitoring each day. This should keep the membrane, pH, ammonia levels, and temperature levels, among other things, under control. The suggested study encourages remote monitoring of a fish farming system using the Internet of Things (IoT) for real-time monitoring and control. The project's objective is to develop an automated fish farming monitoring system to save the farmer time, money, and energy. Farm productivity in the country has been changed thanks to the Internet of Things (IoT) technologies. Various sensors, such as pH, temperature, and TDS sensors, are used in fish farming. All processes are automated with these sensors, and it will be simple to monitor the fish farming remotely from different locations.

Index Terms

Biofloc Technology, Microcontroller, pH sensor, Turbidity

Effect of modifying bowl geometry for IC engine fuelled with diesel and Bio fuels - Review

Bhavesh Pathak

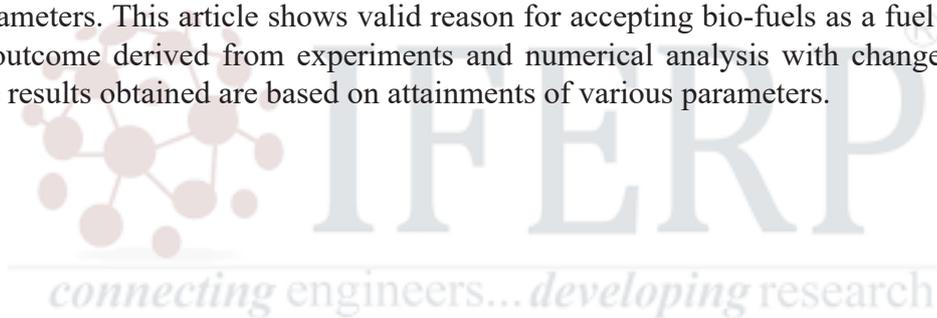
The Maharaja Sayajirao University of Baroda

Nikul Patel

The Maharaja Sayajirao University of Baroda

Abstract

Bio-fuels are one of the most prominent, emerging and promising fuel which is aimed to replace diesel in next decade. Though bio-fuels may not give the same performance as conventional diesel due to certain issues related to technical aspects and economical aspects. This fact leads for the needs in alterations supposed to incorporate either in shapes of combustion chamber or other critical factors that affecting performance of engine. Shape of the top surface which is known as a bowl in piston plays major role and any slight modification in that shape leads to amplified effects on various combustion, emission and performance parameters. This article shows valid reason for accepting bio-fuels as a fuel for CI engine by considering outcome derived from experiments and numerical analysis with changes in shape of piston bowl. The results obtained are based on attainments of various parameters.



A Review on Techniques to mitigate NOX in CI Engine fueled with various biodiesel blends

Asfakahemad A Shekh

Faculty of Tech & Engg, M. S. University of Baroda

Dr Nikul Patel

Assistant Professor, Mechanical Engineering Department, Faculty of Technology & Engineering, M S University of Baroda

Abstract

Alternative fuels have changed in due to increased energy demand and environmental concerns. Biodiesel is tempting as a substitute fuel source because it minimizes exhaust emission and also neutralize the CO₂ emission. Biodiesel, on the other hand, emits more NO_x than regular diesel fuel. This paper focuses on the consequences of combustion phenomenon with diesel and biodiesel as a fuel on NO_x emissions and how to reduce them in CI engine. Very first section of the study examines NO_x creation event to understand basic dynamics of NO_x development processes. The second section discusses both before and post combustion techniques for reducing emissions of NO_x from biodiesel-powered engines. The outcome of NO_x emissions mitigation implies, EGR, water emulsion, water/steam injection, fuel additives and SCR are effective. However, if not completely adjusted, there are few drawbacks to this technology in terms of smoke and particulate matters emissions, besides brake-specific fuel consumption. From this review it is observed that the NO_x emission has correlation with exhaust gas temperature.

Knowledge to Empower

Comprehensive review on recent MAC protocols in Wireless sensor network

Mr. Shankar Madkar

Research scholar, Shivaji University Kolhapur

Dr. S.A. Pardeshi

Principal, Government Womens Polytechnic, Tasgaon, Sangli

Dr. M.S. Kumbhar

Associate Professor, Rajarambapu Institute of Technology, Rajaramanagar Sangli

Abstract

The MAC protocols have been investigated substantially. The protocols may vary based on network architecture and applications. The paper surveys MAC protocols for wireless sensor network and classifies the various approaches. The performance of each protocol is discussed with considering different parameters. The paper concludes with different research issues. Machine learning Based MAC can be developed to optimize the performance metrics of MAC protocol.



Parametric Analysis of Copper Nanofluid Based Mixture For the Improvement of Heat Transfer

Sharad P. Bargat

Mechanical Engineering, Terna Engineering College, Maharashtra.

Dr. S. K. Kamble

Mechanical Engineering, Terna Engineering College, Maharashtra.

S. P. Gurav

Mechanical Engineering, Terna Engineering College, Maharashtra.

A. A. Palekar

Mechanical Engineering, Terna Engineering College, Maharashtra.

S. D. Harad

Mechanical Engineering, Terna Engineering College, Maharashtra.

V. S. Chingale

Mechanical Engineering, Terna Engineering College, Maharashtra.

K. S. More

Mechanical Engineering, Terna Engineering College, Maharashtra.

Abstract

Vapor compression refrigeration system extensively used in the field of heating, ventilation, air-conditioning & refrigeration (HVACR). Hence it is paramount to optimise the performance of the system. Many researchers have done the investigation for the improvement of vapour compression refrigeration system (VCRS) by implementing several designs techniques. However due to advancement in nanotechnology, in recent times nanofluids are taken into consideration because of advanced properties which helps to improve the heat transfer. Also, nano-fluids shows better heat transfer than the conventional available fluids.

In this work, performance development of the vapour compression refrigeration system (VCRS) has been investigated which is coupled with thermal energy storage tank by using advanced copper nanofluid. The use copper (Cu) nano particles with one of the dimension 100nm has been done during experimentation. Copper (Cu) Nanoparticles are blended with water and with the use of ultrasonication method, the utmost care has been taken to avoid suspension of copper (Cu) nano particles over water surface. Five grams of nanoparticles are combined with 750 ml of water and mixture prepared. The experimentation has been conducted for the different combination of the thermal energy storage tank fluid and prepared Cu+H₂O solution. The experimental result shows the outstanding performance of the VCR system.

Prediction of Physical and Mental Health Disease using Machine Learning (Web Application)

Mrs. Shweta Ashtekar

Department of Electronics Engineering Ramrao Adik Institute of Technology Navi Mumbai, India shweta.ashtekar@rait.ac.in

Gauri Shetti

Department of Electronics Engineering Ramrao Adik Institute of Technology Navi Mumbai, India gaurishetti29@gmail.com

Gautami Sane

Department of Electronics Engineering Ramrao Adik Institute of Technology Navi Mumbai, India gautamisane7@gmail.com

Rachna Tiwari

Department of Electronics Engineering Ramrao Adik Institute of Technology Navi Mumbai, India rachna.tiwari1006@gmail.com

Abstract

People face various diseases due to the environmental condition and their living habits. Hence, the prediction of disease at an earlier stage becomes an important task. Moreover, the correct prediction of disease is the most challenging task. To overcome this problem data mining plays an important role in predicting the disease. With the dataset of the most commonly exhibited diseases, we will be able to build a relation for predicting the possible disease based on the input of symptoms by healthcare professionals. A web application predicting all the common physical diseases along with mental health (Anxiety and Alzheimer) will prove to be a great medium for early detection of these prominent diseases.

Keywords

Anxiety, Prediction, Random Forest Algorithm, Mental Health, Machine Learning, Physical Diseases.

Enriching Employee Experience through HR-Bot-based e-HRM: A Study in Aditya Birla Fashion & Retail Ltd

Syed Rizwan Naqvi

Research Scholar, Amity Business School, AUUP, Amity University, Noida, India

Dr. Puja Sareen

Associate Professor, Amity University, Noida, India

Dr. Tanuja Sharma³

Professor, MDI Gurgaon, India

Abstract

Innovative businesses must redesign their people management procedures to accommodate a workforce of different generations. Retaining employee experience as a primary consideration when developing strategies has numerous positive effects on corporate performance. This article's primary goal is to examine the idea of employee experience in the contemporary HR context and to pinpoint its immediate causes and effects. Future researchers may include quantitative testing of the proposed design of a pleasant employee experience. Case-based analysis of Aditya Birla Fashion & Retail Limited (ABFRL) is the research methodology employed in the study. The research study is exploratory based on secondary data. The study's findings demonstrate the enhancement of employee experience by using AI-based HR bots.

Keywords

e-learning, case study, employee experience, HR-bot

Background Noise Suppression Using Deep Learning in online mode Teaching Learning

Dr. Shrishailappa Patil

Professor, Vishwakarma Institute of Technology, Pune, patil.st@vit.edu

Ashwini Patil

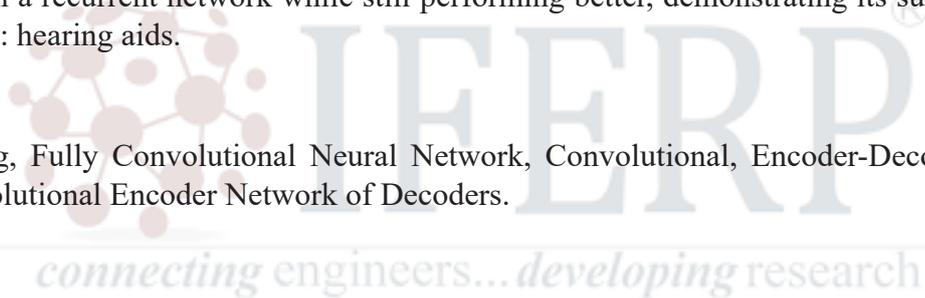
Team Lead, Faurecia, Pune, aspatil99@gmail.com

Abstract

The presence of noise in hearing aids drastically reduces the intelligibility of human speech. In a low SNR setting, however, eliminating the noise without generating artifacts in human speech is a difficult challenge. We attempted to fix the problem by using supervised learning to find a mapping between noisy and clean speech spectra. We recommend specifically employing fully convolutional neural networks, which have fewer parameters than fully connected networks. The Suggested Network, Redundant Convolutional Encoder-Decoder (R-CED), illustrates that a convolutional network maybe 12 times smaller than a recurrent network while still performing better, demonstrating its suitability for an embedded system: hearing aids.

Index Terms

Speech Denoising, Fully Convolutional Neural Network, Convolutional, Encoder-Decoder Network, Redundant Convolutional Encoder Network of Decoders.



Laboratory Study of crumb rubber as an additive for bitumen modification in road construction

Samson Olukayode Olopade

Department of Civil Engineering, Yaba College of Technology, Yaba, Lagos, Nigeria

Olayinka Olawale Olarewaju

Department of Civil Engineering, Yaba College of Technology, Yaba, Lagos, Nigeria
olukayode.olopade@yabatech.edu.ng

Abstract

This study assesses the laboratory study of polymer modified bitumen in road construction by investigating the effect of crumb rubber (usually in the range of 18 to 25% of rubber) as the modifier blended with bitumen was carefully observed at a room temperature of 166^oC using wet process. For many years, the asphalt binder has been used as the elemental material for flexible pavement. The increase in axle loads, heavy traffic, severe climate conditions and construction failures have led many researchers to seek some methods to enhance the bitumen modifications. Several laboratory tests conducted include; Penetration test, Ductility test, Saybolt viscosity test, Ring and ball softening point test and Loss on heating test. Three (3) kilograms of natural bitumen and one (1) kilogram of granulated crumb rubber were sourced for the purpose of this study where it was varied at 0, 2.5, 5.0 and 7.5% by weight of asphalt mixture respectively. At 2.5%, the results showed improvement in physical properties of the modified asphalt binders in terms of increase in penetration, softening point and viscosity values. It can be concluded that crumb rubber modifications of bitumen have been proven to improve characteristics of bituminous binder such as the viscosity, softening point, loss modulus, and storage modulus. The modified bitumen exhibited enhanced rheological performance and could raise the grade of bitumen relying on the base asphalt type. The results showed that crumb rubber is recommended as an additive in asphalt mixtures, as all the test results are within the standard requirements.

Keywords

Crumb rubber, bitumen, wet process, polymer modified bitumen, penetration test, Saybolt viscosity test, ring and ball softening test.

Factors Influencing Informal Entrepreneurship: Exploring Home Based Women Entrepreneurs

Sangati Sneha

Research Scholar, Business School , Vellore Institute Of Technology , Chennai

Shwetha.M.Krishnappa

Assistant Professor , Business School, Vellore Institute Of Technology , Chennai

Abstract

This paper studies the impact of socio demographic profile, social support, and government initiatives on entrepreneurial intention of home based women entrepreneurs in Chennai. Data were collected from 15 entrepreneurs through in depth semi structured interview using purposive sampling technique. The interview questions mainly concentrated to extract the financial position, age, marital status, education, home ownership, household size, family support, business income, future plan and challenges influence the reason for choosing their entrepreneurship. Result suggests that financial independence, lack of employment opportunity, and freedom act as main motivators for choosing entrepreneurship. Results also indicate that women entrepreneurs are not aware of any government schemes which are introduced by the government for the development of Women entrepreneurs.

Keywords

Women Entrepreneurs, Awareness of government schemes, Financial independence , employee opportunity.

connecting engineers... developing research

Experimental Investigation on Strength of RC Beam using Geopolymer Concrete and adopting Bubble Deck method as a Green Technology

Sanjay K. Bhadke

Research Scholar School of Engineering and Technology G H Raisoni University, Amravati Maharashtra, India

Dr Tushar G. Shende

Research Supervisor School of Engineering and Technology G H Raisoni University, Amravati Maharashtra India

Dr. Surendra.R. Kukadapwar

Research Co-Supervisor School of Engineering and Technology G H Raisoni University Amravati Maharashtra India

Abstract

In construction, beams are a very important structural member that can bear the load of the slab. Bubble beams are a method of removing almost all of the concrete from the center of beams that do not perform a structural function, greatly reducing the dead load of the structure. A bubble beam is a beam in which the core is replaced by spherical particles of different sizes and shapes. Bubble Deck systems typically combine the advantages of factory-made elements with on-site construction under controlled conditions. Some of the key benefits are overall cost reduction, reduced material consumption, improved structural efficiency, reduced construction time and eco-friendly technology. In this project, the inefficient concrete in the middle of the girder will be replaced with an HDPE hollow ball and M25 grade concrete will be used to compare the weight and flexural strength. Bubble Deck technology uses hollow HDPE spheres/plastic balls/plastic waste to replace the inefficient concrete in the centre of the slab, reducing dead weight and increasing floor utilization efficiency.

This method is used in concrete floor systems. Concrete resists compression well and is therefore more useful in the compression zone than in the tension zone. Concrete reduction can be accomplished by replacing concrete in the stress area. Keeping that idea in mind, an attempt was made to explore the effectiveness of plastic bubbles by replacing the concrete in the tension zone of the beams with conventional Portland cement concrete (OPCC) and geopolymer concrete. (GPC). Geopolymer concrete does not produce calcium silicate hydrate (CSH) for foundation and strength like OPCC, but uses polycondensation of silica and alumina precursors to achieve structural strength. In this study, concrete mix M25 will be prepared for both OPCC and GPC beams. The test mixture shall be tested for its compressive strength. Bending test shall be carried out within 28 days from the date of beam curing. The procedure is repeated for beam samples with bubble mesh and bubble mesh with shear reinforcement. A comparative analysis between OPCC and GPC beams will allow to observe the percentage reduction in dead weight and profit. An analysis of the behavior of the GPC beam compared with the OPCC beam is also attempted.

A Machine Learning based Optimal Analysis of Cyber Crime Data

Swati Sharma

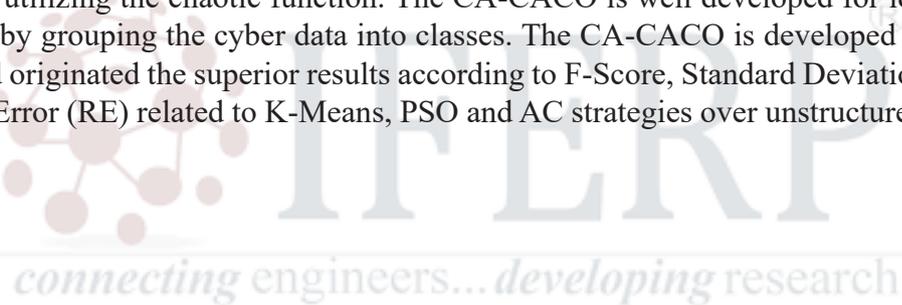
School of Information Technology, Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal, India

Varsha Sharma

School of Information Technology, Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal, India

Abstract

The cybercrime is rapidly evolving in everyday life and the cost of protection against cybercrimes is also quickly rising from few dollars to millions of dollars. The attackers are generally accessed the victim's devices unauthentically with the help of internet to perform some malicious cybercrime activities. The preceding research works on cybercrime strive from nonappearance of assessment techniques to identify the cybercrimes, mostly on unstructured framework. Therefore, a Classification Approach using Chaotic Andean Condor Optimization (CA-CACO) is implemented for machine learning based optimal analysis of cybercrime data utilizing the chaotic function. The CA-CACO is well developed for identifying the crime rate in India by grouping the cyber data into classes. The CA-CACO is developed on MATLAB 2021a platform and originated the superior results according to F-Score, Standard Deviation (SnDt) and Root mean square Error (RE) related to K-Means, PSO and AC strategies over unstructured cybercrime datasets.



Parametric Study of ECM while machining EN 31 Tool Steel Using Taguchi Method

Pritam Pain

Department of Mechanical Engineering, Haldia Institute of Technology, Haldia, West Bengal 721657, India
pritam.me.dscsdec@gmail.com

Goutam Kumar Bose

Department of Mechanical Engineering, Haldia Institute of Technology, Haldia, West Bengal 721657, India
gkbose@yahoo.com

Abstract

This study's goal is to establish the ideal process parameter settings for Electrochemically Machining (ECM) EN31 tool steel in order to achieve the highest material removal rate (MRR). Electrolyte concentration, voltage, feed rate, and inter-electrode gap are taken into account as process parameters. Using a mix of process parameters based on the L27 Taguchi orthogonal design, experiments are conducted. Analysis of variance is also used to examine the separable influence of specific machining factors and the interaction between these parameters (ANOVA). The inter-electrode spacing and feed rate are shown to have the greatest impact on regulating MRR of ECM machining. The analysis is used to determine the best set of process parameters for maximising MRR as well as to ensure that the analysis is accurate. The surface morphology of the machined surface is lastly investigated using scanning electron microscopy (SEM).

Index Terms

Electrochemical machining; Material removal rate; Taguchi analysis; ANOVA

Current Issue on Supply chain Knowledge Management for future research: A Literature review

Swapnil Ramdas Nimbhorkar

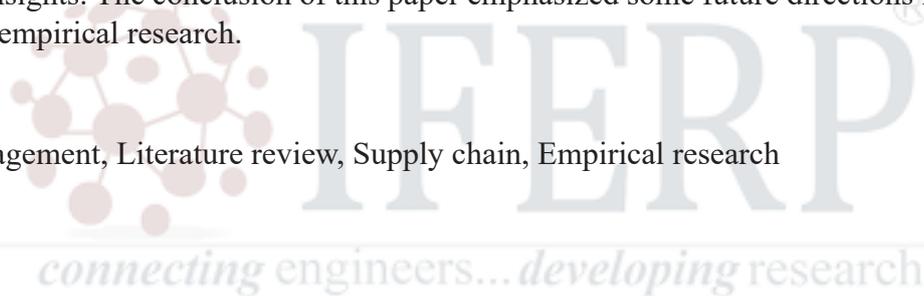
Prof. Ram Meghe Institute of Technology & Research, Badnera (Rly)

Abstract

This paper aims to come up with the role of knowledge management in supply chain management by reviewing the published literature. The literature review is carried out to examine the status of knowledge management in the supply chain within the agriculture and industrial sectors. A selected referred journal articles were systematically examined. This review finds out various conceptual and methodological attributes in which the study of current research trends and past research directions in terms of methodologies applied and discusses implications for future research. The review highlighted some issues that remain unexplored such as the problem of knowledge sharing and systematized in supply chain management. The study of the knowledge creation and sharing process in the supply chain could give new insights. The conclusion of this paper emphasized some future directions for theoretical construction and empirical research.

Keywords

Knowledge Management, Literature review, Supply chain, Empirical research



A secure safety monitoring framework for Deep Seabed Mining

Aman Ahmad Ansari

The LNM Institute of Information Technology, Jaipur

Bharavi Mishra

The LNM Institute of Information Technology, Jaipur

Poonam Gera

The LNM Institute of Information Technology, Jaipur

Abstract

Currently, we are in the process of transitioning from traditional energy to clean energy. This will put a tremendous strain on minerals we extract from the earth. Specifically, metals like Nickel, manganese, cobalt, and copper. These metals are critical for clean energy technologies, such as solar panels, wind turbines, electric vehicle batteries, and other energy storage devices. The deep seabed contains these minerals in various forms on the sea floor. The process of extracting minerals from the deep seabed is called deep seabed mining. Extracting minerals from deep seabed requires continuous monitoring of the environment that can be done using an underwater wireless sensor network (UWSN). An adversary can insert bogus data into the network to affect the mining process. So, it is necessary to guarantee the trustworthiness of data used during the decision-making process. In this paper, we presented a security framework to provide a lightweight and secure communication of sensed data. The proposed framework applies the elliptic curve cryptography with one-way hash functions to accomplish mutual authentication and security. We simulated the proposed framework on AVISPA and provided the security analysis of the framework. Security analysis shows that the proposed framework is safe against known security attacks.

Deep Learning Based Skin Tumor Detection

Ayushi jain

Meerut institute of engineering & technology

Abstract

Deep learning model facilitates automation and prediction in many different areas. These models can learn many different features from representations of images. One of the advantageous algorithms is convolutional neural network which is playing great role in medical fields. This study proposed a CNN based model for detecting skin tumor by adding some preprocessing techniques as skin infection is very common all over the world but these can be dangerous and turned out to be cancer more frequently. If these are not timely detected or treated, then these can be extreme and fatal as they may be infected to other parts of the body. This model implements MNIST HAM10000 dataset that is published by International Skin Image Collaboration. It has seven classes of skin cancer. This research proposed a stacked CNN based approach and achieved highest accuracy of 99.7% in identifying akie, 96.7% in dermatofibroma, and 86.6% in melanocytic nevi. Overall the model achieved 83.45% accuracy with 97.07 of specificity, 83.79% of sensitivity and 83.79% of f1-score.



Dam Failure Analysis and Flood Inundation Mapping For Harangi Reservoir Karnataka

Smita Patil

The National Institute of Engineering, Mysuru

Abstract

Kodagu has experienced more floods since last three decades, but not failure of dam. Hence a little consciousness is given for a possible failure of dam and flood happening due to failure. This paper highlights the study of the possible dam break of Harangi Dam and flood inundation mapping using one dimensional hydraulic model called Hydraulic Engineering Centre's River Analysis System. The study has been carried out for overtopping failure scenario. The study involves prediction of breach parameters, breach hydrograph, peak flow and generation of flood inundation maps. The dam break model is simulated for unsteady flow conditions using Probable Maximum Flood (PMF) 5774 cumecs corresponding to overtopping failure scenario. Further simulations of the HECRAS model are conducted for breach parameters taken from Froehlich's (2008) empirical equation. To determine the variance of peak flow and maximum stage in relation to breach parameters, a study is conducted. The immediate downstream of the dam experience a peak flow of 24117.89 cumecs corresponding inundation area of 3.83 km² due to overtopping failure.

Index Terms

Dam Break, Breach Parameters, Flood Inundation Mapping, HEC-RAS.

Knowledge to Empower

Introduction To Deep Learning And its Related Case Studies

Sakshi

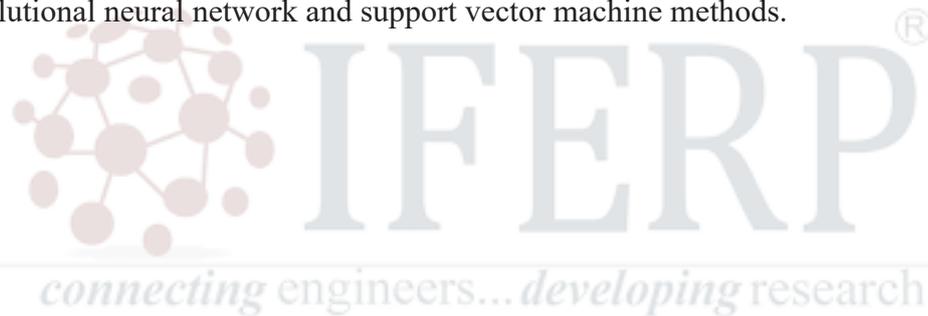
Manav Rachna University, Faridabad, Haryana

Dr. R. Girija

Manav Rachna University, Faridabad, Haryana

Abstract

This paper initially introduces deep learning. The next step in machine learning is deep learning. This paper make deep insights into the review of the literature related to deep learning. The papers used various deep learning approaches such as autoencoder, convolutional neural network, deep belief network, recurrent neural network. Offshore wind farms are the subject of one case study of automatic bird identification. That case study use convolutional neural network for extracting features. On the other hand, another case study is of low-power hardware implementation of microscopy diagnostic support system. This case study used convolutional neural network and support vector machine methods.



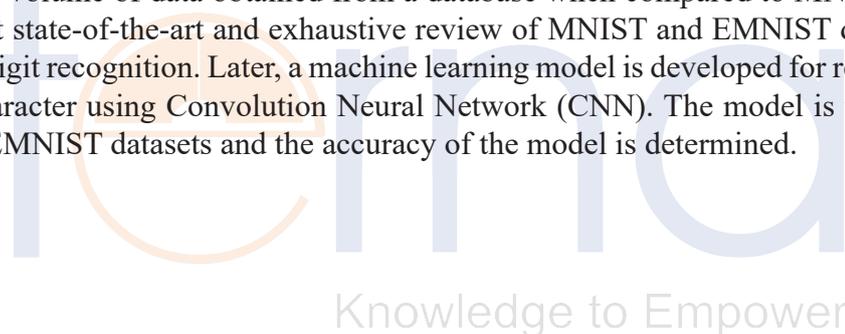
A Comprehensive overview of MNIST and EMNIST datasets for Handwritten Digit and Character Recognition

Mitali Chugh

UPES, Dehradun

Abstract

The handwritten digit and character recognition is the capability of computer applications to recognize human handwritten characters and digits. It is one of the significant areas of research and development with a streaming number of possibilities that could be attained. The MNIST database is a large database of handwritten digits that is commonly used for training various image processing systems. In recent years, many authors have investigated the implementation of deep learning techniques over this dataset. Next in mid-2017, a novel dataset was presented: EMNIST, which consists of both digits and letters, with a greater volume of data obtained from a database when compared to MNIST. This paper reviews the significant state-of-the-art and exhaustive review of MNIST and EMNIST dataset contributions for handwritten digit recognition. Later, a machine learning model is developed for recognizing hand-written digits and character using Convolution Neural Network (CNN). The model is trained and tested using MNIST and EMNIST datasets and the accuracy of the model is determined.



Insights on Cyber Attacks and Potential solution for cybersecurity in the Era of COVID 19

Mitali Chugh

UPES, Dehradun

Abstract

The worldwide spread of the COVID-19 and its effect on all facets of our lives being it work, communication, meeting, etc. are quite evident. Unfortunately, these alterations and the shift to the digital systems in such a short period, lacking appropriate planning provided opportunities for cybercriminals to execute cyber-attacks successfully at a considerably greater speed. The last two years have seen novel trends in cyber-attacks aiming at governments, businesses, health, and other critical services. This research paper presents a detailed review and analysis of cyberattacks related to the COVID-19 outbreak. Then, the paper details that individuals and organizations are vulnerable to cyber security, and the potential solution for escaping cyber-attacks is stated. A model for DDoS detection is presented to make the servers more secure by its use. The trained model will stop and prevent DDoS attacks by analysis of network traffic. In future, the researchers may develop similar solutions for other prevalent cyberattacks.



State-Of-The-Art of zinc oxide nanoparticles-Synthesis and technological applications.

Basílio José Augusto José

Sandip University; School of Science-Nashik

Mahendra Devidas Shinde

Sandip University; School of Science-Nashik

Abstract

Due to various factors affecting global world such as population growth, climate change and environment degradation, pandemic and diseases, energy and food demand, advancement of technologies; Science & Engineering has developed new techniques to enhance the performance of different areas in the service of the humanity through Nanotechnology and Material Science with particular approach in Synthesis. After a wide range of experiments done in synthesis of metal oxides, in this research is presented the current trends of synthesis and technological application of Zinc Oxide ZnO NPs. (ZnO NPs) play special role due to its versatility in optical and thermal proprieties, wide band gap and excitation binding energy, fact of being GRAS (Generally Recognized As Safe), which allow a wide range of its application in different areas reported in this review research. methodological, it was reviewed researches which reports the synthesis, applications and contribution of ZnO NPs, published mostly in the last 4 years. The results show that although with side effects in high concentration, ZnO NPs proprieties can be boosted combining or doping with other chemical (semiconductor/metal transition, metal oxides) and biological materials environmentally healthy (fruit, peels, plants, leaves, wastages and animal source products) to enlarge the wide range of its technological application reported in this paper.

Knowledge to Empower

Index Terms

ZnO NPs and application, Renewable Energy- Photovoltaic Solar cells, Civil Engineering- Cement Industry and asphalt, Sensing Technology - gas sensors, Petroleum Industry - Enhanced Oil Recovering, Automotive Industry - Cooling of Engines System, water cleaning and environment, Food Industry - packaging, Forensic and criminalistics, Biomedicine, repellents-antiaging-cosmetics, Electrical-Electronic and Telecommunication Engineering, Textile and Agriculture-fertilizers.

Impacts of Intensive and Non-Intensive Recreation/ Tourism Based Reclamation Strategy in Abandoned Mines

Debasmita Basu

Department of Architecture and Planning, PhD Scholar, Birla Institute of Technology Mesra, India
debasmita.basu.123@gmail.com

Smriti Mishra

Department of Architecture and Planning, Assistant Professor, Birla Institute of Technology Mesra, India

Abstract

One of the specialized types of tourism, mining tourism has recently emerged as means of reviving old industrial areas or as addition to local tourist industry. Although it is niche area of tourist business that is expanding, it's frequently disregarded by that same industry. While mine closure issues have previously been investigated, no attention has been paid to the effects of mine closure once reclamation is completed in said mines. In mining region and its immediate surroundings, mining operations have a detrimental effect on soil, water sources, topography, etc. The aforementioned factors cause post-mining landscapes to lose their former aesthetic, ecological, social, hydrological and economic value. When mining tourism is used, several environmental, sociocultural, and economic benefits are realized. The study unveiled that most implemented reclamation strategy are intensive and non-intensive recreation/tourism based reclamation techniques. Naturally, there isn't a "special" or "magical" reclamation strategy that can be instantly implemented to all post-mining regions, as key factors in each reclamation study are quite different and depend on the particular features of the location. Thus, the study paves way for incorporation of interdisciplinary strategy through cooperation between various stakeholders' considering their perception and research fields for long-term viability of mining site restoration.

Planning and Implementation of Tourism Evaluation Tool to Town Planning and Infrastructure for Competitive Place-Making

Aditi Nag

Department of Architecture and Planning, PhD Scholar, Birla Institute of Technology Mesra, India
ar.aditi204@gmail.com

Smriti Mishra

Department of Architecture and Planning, Assistant Professor, Birla Institute of Technology Mesra, India

Abstract

A relatively insignificant amount of resources has been allocated by TTCI towards potential development of marginally significant historic sites. Although TTCI has a number of pillars to cover all the requirements for a fully functional tourism site, heritage site protection and preservation are still not acknowledged. Moreover, TTCI index does not quantify the qualitative dimension of stakeholders' perceptions of a site as a competitive tourism destination, which has a substantial influence on heritage planning initiatives. TTCI revision has been sluggish, and TTCI models have not yet included collaborative governance. The research's primary objective was to examine the TTCI competitiveness evaluation method in the context of stakeholders' perceptions for evaluating the tourism effects of a heritage site with little tourism growth. The methodology of the tool was examined by the authors, however concluding that it was unsuitable for assessing heritage sites that lacked conservation. The findings show that heritage planning techniques may be significantly impacted by stakeholders' perceptions of site as competitive tourist attraction. In effort to make place-making exciting and lucrative enterprise, collaborative governance model and the proposed TTCI can open the door for necessary conservation upgrades for underserved sites while also contributing in effective heritage planning for the remainder.

A Study on Collaborative Learning and Identification of Expressions of Learners to Improve the Performance of Learners

Mr. Vivek Patil

Research Scholar, Sandip University, Nashik

Dr. Sajidullah Khan

Associate Professor, Sandip University, Nashik

Dr. Amol Potgantwar

Professor, SITRC, Nashik

Abstract

Learning is the process of acquiring new skills which helps an individual for growth in his career. Collaborative learning is one of the effective ways of learning where the group of learners works together to solve the given task, which helps learners to improve their thinking level, problem solving approach, understanding level of the learners in collaborative learning can be identified either by expression or movement of a part of the body. Main focus of this work is to study the approach of collaborative learning, benefits of collaborative learning, development of collaborative learning environment. This study shall help to develop systems for collaborative learning environments and to classify the type of learners in collaborative learning environments.

Keywords

Machine Learning, collaborative Learning

Performance Study of SBR with the Evaluation of Recovering Phosphorous and Nitrogen from Domestic Wastewater in Puducherry Region

Aishwariya R.P

Puducherry Technological University, Department of Civil Engineering, Puducherry, India
aishwariya.rp@gmail.com

Saravanane.R

Puducherry Technological University, Department of Civil Engineering, Puducherry, India
rsaravanane@ptuniv.edu.in

Govindaradjane.S

Puducherry Technological University, Department of Civil Engineering, Puducherry, India, sg@ptuniv.edu.in

Abstract

Nitrogen and phosphorus are essential for plant development and crop production. While nitrogen is abundant (78%) in the atmosphere in the very stable and non-reactive form N₂ gas, it is scarce in soils. Whereas, the last few decades, there has been a growing awareness of the finite nature of phosphorus resources, as well as the significance of phosphorus recovery. In plants, phosphorus is a limiting factor. As a result, it is a significant component of fertilizers. Fertilizer industry processes the major part of the mined phosphate rock. Because phosphorus is non-renewable, it is critical to ensure that the amount of phosphorus fertilizer available in the future is sufficient to ensure a stable supply of food for the world's growing population. Nitrogen and phosphorus have emerged as major contributors to the eutrophication of receiving waterways. As a result, more rigorous environmental laws are implemented to reduce their discharges, generating an urgent need. There is a need for technical methods to improve nutrient removal and nutrient recovery in the current secondary wastewater treatment plants, removal (WWTPs). The obtained test result of 'N' and 'P' which are outlet chlorinated samples 9.6mg/l and 1.6mg/l. Hence the need for nutrient recovery, the strain on reactive nitrogen and phosphorus production is reduced, resulting in less reactive nitrogen and phosphorus entering the environment. This would result in more efficient fertilizer usage and a lower environmental impact. The Nation's total consumption of Phosphorous in all sector are 8808.99 Million Kg /year has been estimated. The study results of the cost comparison between struvite fertilizer and conventional fertilizer show that struvite fertilizer is more affordable than other conventional fertilizer

Index Terms

EBPR, Nitrogen, Nitrification & De-nitrification, Phosphorous, SBR and Struvite.

Design and Analysis of Opposed Piston Compressor

Lokesh Pradhan

School of Mechanical Engineering, Lovely Professional University, Phagwara, India, lokeshp1317@gmail.com

Ajay Anand

School of Mechanical Engineering, Lovely Professional University, Phagwara, India, ajayanand881@gmail.com

Ashutosh Singh

School of Mechanical Engineering, Lovely Professional University, Phagwara, India, singhashutosh2222@gmail.com

Amit

Assistant Professor, School of Mechanical Engineering, Lovely Professional University, Phagwara, India
amit.20337@lpu.co.in

Abstract

Higher Pressure difference has always been of top importance in the compressor industry. Compressors are used for delivering fluids at high pressure or can also be used to store fluids. The same spark for improving higher pressure difference and improving pressure output has led our team to the origin of the title of this report. Extensive research has been done so as to how an opposed-piston compressor provides continuous pressure output instead of pulsating which is found in the reciprocating compressor. We also know how an opposed-piston compressor design is unique because of the two pistons which are opposite to each other as compared to a single-piston while studying the concept of reciprocating compressor. In this project, we have designed different components of opposed piston compressors and assembled the different parts using Creo software. We have then done analysis on different parts of opposed piston compressor such as static structural and steady-state thermal analysis on Ansys software. Under static structural different types of analysis have been done such as total deformation, shear stress, maximum shear stress and different types of analysis done under steady state thermal are temperature and heat flux. Input parameter of 9×10^5 Pa was applied on top of piston while keeping pin hole as fixed support. During normal compression process above 400°C temperature is obtained. The result that we obtained from our analysis was 466.1°C which is feasible for opposed piston compressor. Aluminum alloy material was finalized for different parts of piston compressor because of its low thermal expansion coefficients, high strength as well as excellent corrosion and wear resistance.

Index Terms

Analysis, Ansys, Compressor, Creo.

Agile Project Management Awareness status of Final year students of Engineering Graduation Programme for Mumbai University

Saurabh Vilas Kane

Ph.D. Research Scholar, Faculty of Management, Dr Vishwanath Karad's MIT World Peace University, Paud Road, Kothrud, Pune, Maharashtra, India saurabhkane.mitwpu@gmail.com

Dr Prasad Jeevan Pathak

Assistant Professor, Dr Vishwanath Karad's MIT World Peace University, Faculty of Management, School of Management (UG), Paud Road, Kothrud, Pune, Maharashtra, India Prasad.pathak@mitwpu.edu.in

Abstract

Industry 4.0 have altered the functioning of firms across domains. The firms are restructuring into Agile organizations. This offers them better flexibility to sustain in the highly volatile and complex market. Firms require Agile compatible workforce at every level to satisfy the expected agile transformation within the company. Fresh University graduates is of the key source of any organization workforce recruitment. Through this research paper, researchers have explored status of Agile concept awareness among the final year engineering students studying at various Engineering colleges affiliated to Mumbai University. Researchers have made use of Survey method by floating questionnaire with the respondents selected by Convenient and snow-ball sampling technique. After analysis of primary data received through survey forms, researchers have detailed out findings and gaps between university curriculum and industry demand. Researchers have further provided suggestions to stakeholders viz. graduating students, University and affiliated institutes to overcome the highlighted gaps

Knowledge to Empower

Influence of geosynthetic reinforcement on load settlement behaviour of soft soil for flexible pavement application

Mir Sohail Ali

Research Scholar, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. (M.S) India.

Dr. M. S. Dixit

Research Guide, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. (M.S) India.

Abstract

Now a days deformation in roads due to settlement is the main cause of damage to flexible pavements, especially those that have been built on soft soils. The progress of a country is depending on transportation. In India, road transport carries close to 90 percent of the passenger traffic and 70 percent of freight transport. Due to rapid urbanization and mass industrial development, there has been a tremendous increase in traffic intensity. Construction of roads is a costly affair and in view of this, it has become necessary to develop and apply cost-effective materials and methods. The review revealed that geogrid is the most used geosynthetic product in pavements, followed by geotextiles and geocells. To verify this, experimental investigations were carried out in order to determine the improvement in load settlement behaviour of soft soil after reinforcing with geogrid and geojute of different size and at various depth. This study consisted of number of laboratory test on model square footing supported on reinforced soil beds and different parameters were evaluated related to current practice and use of geosynthetics. Parameters of testing programme of the research are varying the depth of reinforcement, the plan area of reinforcement and the footing size.

Human Fall Detection Using Gaussian Mixture Model and Fall Motion Mixture Model

K Durga Bhavani

Department of Computational Intelligence, SRM Institute of Science and Technology, Kattankulathur, Chennai, India, kb6456@srmist.edu.in

M Ferni Ukrit

Department of Computational Intelligence, SRM Institute of Science and Technology, Kattankulathur, Chennai, India, ferniukm@srmist.edu.in

Abstract

Accidental deaths from falling are the second most common cause of death from injuries that were not self-inflicted. The past two decades have seen a significant growth in the number of studies that investigate the use of technology for the autonomous detection of human falls. This is a fascinating conundrum, and there are many various approaches one may take to solving it. Over the course of these past few years, a great deal of different strategies has been proposed. These tools provide solutions to recognise many actions that a person may be engaged in, like walking, running, leaping, jogging, falling, and many others. The prevention and detection of falls is particularly vital among all these activities since falling is a common and potentially hazardous event for people of all ages, but it has a greater detrimental effect on the senior population. The computational complexity of the algorithm utilised by many of the fall detection systems currently in use makes it impossible for any of them to eliminate false positives. Video cameras fall detection is preferable than wearable sensors. This article uses vision to detect falls and recognise activities. The suggested technique detects falls simply using video-camera images, without ambient sensors. Firstly, building a Gaussian mixture model (GMM). After GMM, Fall Motion Mixture Model (FMMM) is used implicitly to capture motion properties in fallen and non-fallen films using fall motion vector. The fall events are easily identified from URFall dataset that outperforms the previous approaches.

Keywords

Fall motion vector, Human fall detection, Deep learning and URFall.

Improving the Pavement performance by incorporating Geocell reinforced granular base with Basal reinforcement

Quadri Syed Ghausuddin

Dr. Babasaheb Ambedkar Marathwada University

Dr. M.S. Dixit

Dr. Babasaheb Ambedkar Marathwada University

Abstract

The ever-growing demand to develop infrastructure propelled by global population explosion is forcing construction on all types of soils, including weak and difficult soils. Several research studies have shown in the past that geocell strengthening is effective when granular filling is used above weak under layers under monotonic loading conditions. However, little information is reported in the literature on load tests on pavement sections reinforced with waste plastic bottle geocells (WPBG) along with geogrid. Hence, there is a dire need to understand the behaviour of waste plastic bottle geocell reinforced granular bases with basal reinforcements. This research aims to study the effects of using waste plastic bottle geocells in manufactured sand subgrade as reinforcement. Plate footing behaviour emplaced in manufactured sand bed along with geocell made from waste bottles of plastic was studied. Various parameters namely, WPB geocell heights, WPB geocell emplacement depth beneath the footing, vertical distance of geogrid layer from WPB geocell were observed. From experimental investigations it was seen that as the height and depth of emplacement of WPB geocell increases, there is increase in ultimate bearing capacity. Inclusion of basal Geogrid below WPB geocell mattress influences the ultimate bearing capacity.

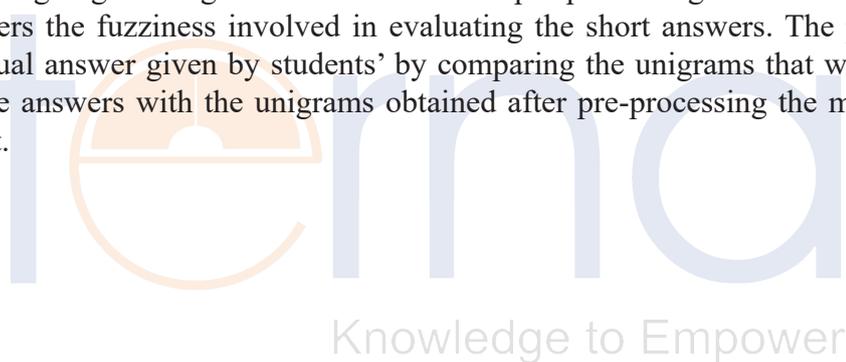
Automated Short Answer Evaluation using Natural Language Processing and Lemmatization

Arul Shalom A

Thakur College of Engineering and Technology

Abstract

Educational tests are one of the primary tools used to assess the students' performance. These tests are conducted in various forms with different question types to assess the students on the learning levels of the Bloom's Taxonomy. The short answer type questions and essay type questions requires the students to write their answers in short sentences. There are various factors that influence the evaluation of the short answer questions. Most of these factors are fuzzy in nature, thus making a fuzzy scoring method a necessity to obtain fair and better results. However, most of the solutions developed so far have not put the fuzziness involved into consideration. This literature/study proposes an evaluation model that incorporates weighing the unigrams obtained after the pre-processing of the short answer from the parser which considers the fuzziness involved in evaluating the short answers. The proposed model grades the short textual answer given by students' by comparing the unigrams that were obtained while pre-processing the answers with the unigrams obtained after pre-processing the model answer set by the subject expert.



Rational Bubble Testing and Forecasting Bitcoin Price during Covid-19 Pandemic

Chavan Rajkumar Dhaku

PhD Research Scholar, Department of Commerce, CHRIST (Deemed to be University), Central Campus, Bangalore

Dr. A. Senthil Kumar

Associate Professor, Department of Professional Studies, CHRIST (Deemed to be University), Central Campus, Bangalore

Abstract

The alternative and speculative digital financial assets in today's developing Fintech market are bitcoin and other cryptocurrencies. In bitcoin, a decentralized technology ensures ownership, and blockchain technology is crucial. These cryptocurrencies exhibit bubble behavior and excessive volatility. The global popularity of cryptocurrencies is creating new hurdles for both the business world and the general people. Additionally, it offers extra advantages to traders and investors in the global financial market. The currency market's traders and fintech researchers have labeled cryptocurrencies as speculative bubbles. The study's primary goal is to identify the bitcoin bubble and breaks that existed during the Covid-19 pandemic. The daily closing price of bitcoin as measured by high-frequency data from 1st April 2018 to March 31, 2021, was taken into account. We have employed machine learning and forecasting techniques like ARIMA. Additionally, utilizing the ADF, RADF, and SADF tests, we identified structural breaks in the Bitcoin and evaluated the explosive bubble. The research's findings are useful in identifying patterns and trends in the pre-and post-pandemic bitcoin market during the study period. The financial market participants can make informed judgments to invest their money in the cryptocurrency market thanks to these tendencies that have been recognized.

Keywords

ADF, bitcoin, bubble, blockchain, cryptocurrency, Covid-19, Fintech

Literature review on some novel Stenographic techniques which are based on the spatial as well as frequency domain concepts of watermarking

Saikat Bose

Department of Computer Science Engineering, Bhabha University, Bhopal, India

Abstract

In the latest trend and success of Internet technology, digital media's intellectual property rights have become one of the major concerns. The primary focus has been the protection of legal digital documents from being used illegally by unauthorized users and protection has been rendered against copyright violations as well as false ownership claim in context to a specific digital document. Considering different cases and scenarios, many researchers have eventually concentrated on the method of secret data hiding technique within digital media. So, the technique of Steganography has gain its acceptance in wide sense, where a proprietary signature of the owner of a digital document is embedded confidentially within the original copy of the digital cover media (image, audio, and video) for the purpose of content protection and authentication. The embedded watermark should be unnoticeable to the Human Visual System (HVS) and it should also be powerful enough to sustain most common forms of image/signal processing distortions as well as different malevolent attacks to make the system more dependable as well. We have seen different watermarks techniques which create a serious degradation of the visual quality of the documents but don't require the knowledge about the original digital cover media at the receiver side that is known as the blind watermark extraction technique. The introduction of copyright framework has resulted in the intended authenticated beneficiary to have a say on the reasonableness of the digital documents. This paper is a detail literature review of some novel Stenographic techniques which are based on the spatial as well as frequency domain concepts of watermarking with reasonably high data payload as well.

Project Resource Planning for application of NATM Technology in Pune-Metro

Kadam Harshad Shahaji

K. E. Society, Rajarambapu Institute of Technology, Rajaramnagar, An Autonomous Institute, Affiliated to Shivaji University, Kolhapur

Abstract

The new Austrian tunneling method (NATM) was developed between 1957 and 1965 in Austria. It was given its name in Salzburg in 1962 to distinguish it from the old Austrian tunneling approach. The main contributors to the development of NATM were Ladislaus von Rabcewics, Leopold Muller, and Franz Pacher. It was originally developed for weak ground, i.e. where the materials surrounding the tunnel require rock supporting works because they are over-stressed. There are many papers regarding NATM working in different environmental condition, and different geological conditions but in Pune Metro UG-04 project have different ground conditions which make it suitable for one of the entry i.e. West Subway. For the East subway construction Cut and Cover method for tunnel construction was used. In that subway, they face many difficulties like Road diversion work, utility diversion, and space for excavation up to raft level. To minimize many construction constraint Client Has Provided flexibility in choosing the tunnel construction method for the west subway. By considering Ground conditions, Economy, and Resources, the NATM tunneling method is best suitable for the West subway. To make it economical and more efficient, project planning plays an important role in this process. Resource planning in NATM importantly covers Manpower, Material, and Equipment. This Paper covers the major resources required for the west subway and cost comparison with adjacent Cut and cover Tunnel i.e. East Subway.

Neural Network Modelling for Shear Strength determination of soil

Rahul Ramdas Wankhade

Prof Ram Meghe College of Engineering and Management, Badnera, Amravati, Maharashtra

Abstract

Shear strength is the important Geotechnical Engineering property of soil and various engineering approaches are explored by researchers for its determination. The path of shear strength determination evolution mainly includes testing, empirical correlations and computational modelling. Testing involves extensive laboratory experimental procedure and is the most preferred one amongst the practitioners. However, testing is not only costly and time consuming but inevitably produces random errors. This could be overcome by using analytical or empirical correlations developed by researchers using in situ soil properties. Empirical correlations are found to be only useful for approximating the expected range and have notable variation with the site specific results. These poor fit thought to be eliminated with adaptation of more sophisticated computational modelling. Predominantly adopted computational methods are regression analysis and Artificial Neural Networks.. Regression analysis demonstrates convergence between the testing values and those worked out on the basis of index properties. With complexity involved in regression analysis, Artificial Neural Network (ANN) which works on probabilistic modelling is considered to be better for establishing better relationships. Artificial Neural Networks model could prove to be an promising alternative, which has well established its utility for prediction of pile capacity, ground anchor capacity, liquefaction, modelling constitutive monotonic and hysteric behaviour of geomaterials etc. The objective of this study is to check feasibility of development of robust ANNs model that could be used for prediction of shear strength of soil from its index properties which are relatively easy to determine. The ANNs model developed could be used to estimate shear strength in the absence of good quality sample and equipment needed for conduction of conventional tests.

Key Words

Shear Strength, Testing, Empirical Correlations, Regression Analysis , Artificial Neural Network

Optimal Angle Control Strategy for Switched Reluctance Motor Drive

Mr. D.A. Shahakar

Ph.D Scholar, P. R. Pote (Patil) College of Engineering & Management, Amravati

Abstract

The shortage of energy and environmental pollution are considered as relevant problems due to the high amount of automotive vehicles with internal combustion engines. Electric vehicles (EV) are one of the solutions to localize the energy source and best choice for saving energy and provide zero emission vehicles. The key component of the Electric vehicles is the electric motor and, therefore, its choice is important. Many types of electric motors have been analyzed during last decades and evaluated for EVs. Switched reluctance motors (SRM) have a number of advantages in contrast with other electric motors due to their simple construction, flexibility of control, high efficiency, lower cost and robustness to run under failure conditions. The SRM rotor does not have any windings or permanent magnets, being suitable for very high speed drive application. The switched reluctance motors drives (SRDs) necessitate more advanced control technology than DC and AC motors drives. High torque ripple, acoustic noise and vibrations are the major drawbacks of the SRM. So to decrease the torque ripple and improve the electric efficiency is the main objective and can be achieved by optimization policy.

Keywords

Electric Vehicle, Switched Reluctance Motor , torque ripple, efficiency.

connecting engineers... developing research

An Application of Analytical Hierarchy Process- A Computational Approach to Financial Asset Selection

Divyaansh Verma

Delhi Public School, R.K. Puram, New Delhi

Abstract

Asset selection involves picking up a particular asset within each asset class in such a manner that it would outperform the rest of the assets to maximize the investor's goal of increasing value while mitigating risk. This paper aims to implement a widely used multi-criteria decision making (MCDM) technique known as Analytical Hierarchy Process (AHP) for best asset selection. In AHP, the qualitative problems are described and transformed quantitatively, and then the quantitative analysis is used to find the relationship among various decision criteria. In this study, ethical and suitability criteria are used along with the financial criteria to rank the assets based on individual investors' preferences. To demonstrate the efficacy of the problem, a hypothetical data set is collected for ethical and suitability criteria, and data set of 10 assets of Nifty 50 companies under the National Stock Exchange (NSE) is collected for financial criteria.



Role of Denoising using CBDNet and UNet for Biomedical Imaging

B. Sachin Aditiya

Center for Computational Engineering & Networking (CEN), Amrita School of Engineering, Coimbatore, Amrita Vishwa Vidyapeetham, India, sachinaditiya@gmail.com

Harishchander Anandaram

Center for Computational Engineering & Networking (CEN), Amrita School of Engineering, Coimbatore, Amrita Vishwa Vidyapeetham, India, a_harishchander@cb.amrita.edu

Abstract

In the study of biomedical images, noise removal is an essential step. Over the past three decades, numerous denoising algorithms were developed and functional for image analysis, which significantly outperformed most of the conventional methods. Although these models centered on deep learning are very promising, they still fall behind both in noise reduction performance as well as computational time. To date, such new age algorithms are being merely used in conventional images for denoising tasks that are yet to be explored for biomedical image datasets. This paper deals with two new age algorithms, a convolutional blind denoising network (CBDNet) along with UNet for denoising the two biomedical image datasets such as Brain MRI and Covid-19 affected Chest X-ray images in terms of performance and their computation time. The results obtained from the above algorithms are evaluated based on three universally used performance evaluation metrics that are 1) Mean Square Error (MSE) 2) Structural similarity index measure (SSIM), 3) Peak signal-to-noise ratio (PSNR), and 4) Universal Image Quality Index (UIQI). Upon implementation, denoising performances were investigated in detail and found that UNet outperforms well as compared to CBDNet and in particular computation time was found to be drastically reduced while using UNet, which is one of the encouraging developments in denoising in biomedical images.

A Review on Recent Trends of Denial of Services (DoS) attack in Network Security

Lovepreet Kaur

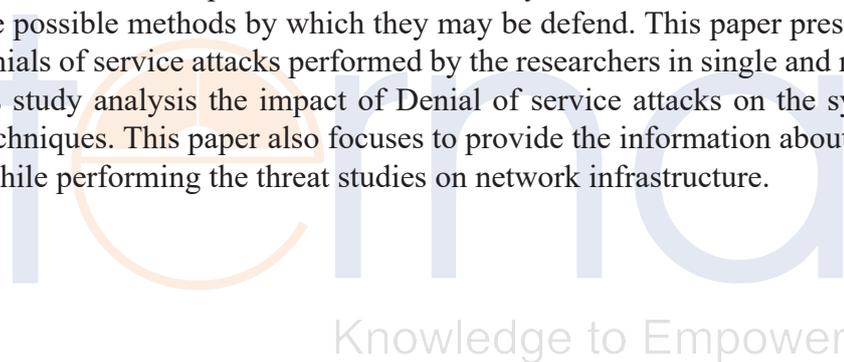
Department of Computer Science & Engineering, Punjabi University, Patiala, Punjab, India
lovepreetkhattra1119@gmail.com

Dr. Harmandeep Singh

Department of Computer Science & Engineering, Punjabi University, Patiala, Punjab, India

Abstract

During the recent advancements in communication technology, the network systems are expected to provide services to users with confidentiality, data integrity, and service availability. Network availability is affected by Denial-of-Service attacks, which prevent communication between devices on a network or deny traffic from a single device. It causes users to be unable to access their systems or services as a result. For avoidance of such problems, one must study how such attacks are carried out, how they are made, and the possible methods by which they may be defend. This paper presents the detailed review of various denials of service attacks performed by the researchers in single and multiple device network systems. This study analysis the impact of Denial of service attacks on the systems along with their prevention techniques. This paper also focuses to provide the information about the dataset used by the researchers while performing the threat studies on network infrastructure.



Future Skills Prime: An Initiative for Capacity Building and Skills Acquisition in the Age of Intelligent Technologies by Government and Indian Industry

Umang Kaur Preet Sahiwal

Research Scholar, Amity Business School, Amity University Noida, umang.kaur@s.amity.edu

Dr. Vijit Chaturvedi

Professor, Amity Business School, Amity University Noida, vchaturvedi@amity.edu

Abstract

The technology landscape globally is witnessing massive disruption, catalyzed by mega trends such as automation, mobility, convergence and connectivity, and Big Data & Analytics. Global economic systems are more interlinked than before, technology is more pervasive, and the world is becoming more interconnected. Emerging technologies like artificial intelligence, big data and analytics, cloud computing, robotics process automation, virtual reality (VR), augmented reality (AR) and additive manufacturing (i.e., 3D-printing) which are heralding the fourth industrial revolution and are resulting in massive shifts across global economies.

Amidst this disruption, one concept that has emerged as a focal point amongst researchers is the idea of Future of Work. Future of Work is a construct to define and explain how the different factors and forces will interact to impact and define how organizations function in the future and the employees that work in these organizations. A World Economic Forum (WEF) study projected that almost 97 million jobs will be created over the next five years. This will overlay with 85 million workers needing to prepare and navigate the shift of tasks between humans and machines (World Economic Forum, 2020).

Keywords

Future Skills, future of work, NASSCOM, Upskilling and reskilling

Neighborhood livability index development and residential land value incorporation

Saman Ambreen

Department of Architecture and Planning, PhD Scholar, Birla Institute of Technology Mesra, India
arch.saman@gmail.com

Rajan C.Sinha

Department of Architecture and Planning, Assistant Professor, Birla Institute of Technology Mesra, India

Binoy B V

Department of Architecture and Planning, Research Associate, National Institute of Technology Calicut, India

Abstract

One of the specialized types of quality of life indicators, neighborhood livability has recently emerged as means of reviving old neighborhoods to transform the residents experience into meaningful skill for better accounting of the land value of an area. Although it is niche area of residential valuing industry that is expanding, it's frequently disregarded by that same industry. Previously land value has been associated with only accessibility, school district commute and proximity, safety and security and social inclusion of all types of backgrounds in the neighborhood residential footprint, a direct link between land value and neighborhood quality of life to develop livability index has been lacking. The aforementioned factors cause livability indexing to be limitedly explored under neighborhood wellbeing, perception, and sustainability criteria. The study explored the social, economic, and cultural impact of a neighborhood in the context of land value fluctuations when amenities are provided or restricted to comprehend the level of quality of life and generate a livability index for the same to assess all neighborhoods. For this purpose a comparative literature review was undertaken. The study paves the path for a universal livability index development process and criteria development for comparison of various neighborhood on the same scale.

Smart Device and Internet of Things (IoT) Convergence technology trends

Ria Kohli

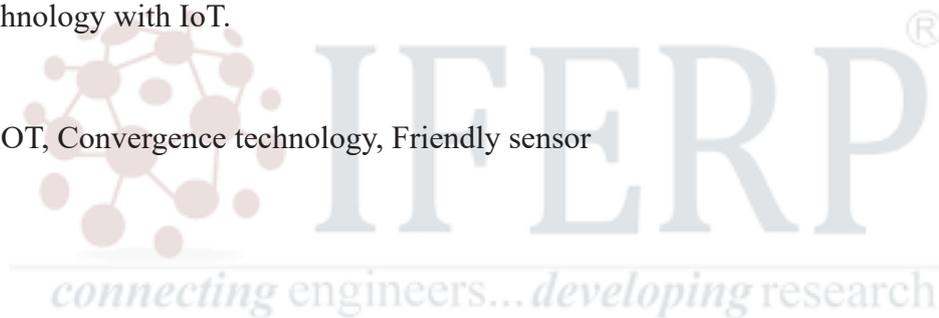
Research Scholar, Bhagwant University Ajmer, Rajasthan

Abstract

Recently, with the rapid spread of smart devices including smartphones, mobile communication the paradigm shift of business is shifting from voice call' to application', and consumers Personalization and life through the process of "development, sharing, participation, and diffusion". People pay a lot of attention to the use for pursuing a change of style. In particular, recently due to the rise of the internet of Things, connection between the internet of Things and smart devices directly processes or controls information collected from nearby sensors through the various attempts are being made to provide a person-centered, life friendly sensor app service .In this paper, with the examples of interworking and application of sensors in smart devices, we would like to examine domestic and international trends in convergence technology with IoT.

Keywords

Smart devices, IOT, Convergence technology, Friendly sensor



A fake news detection model based on classification techniques

Danish Ajazi

School of Engineering Sciences & Technology, JAMIA HAMDARD

Dr. Anil Kumar Mahto

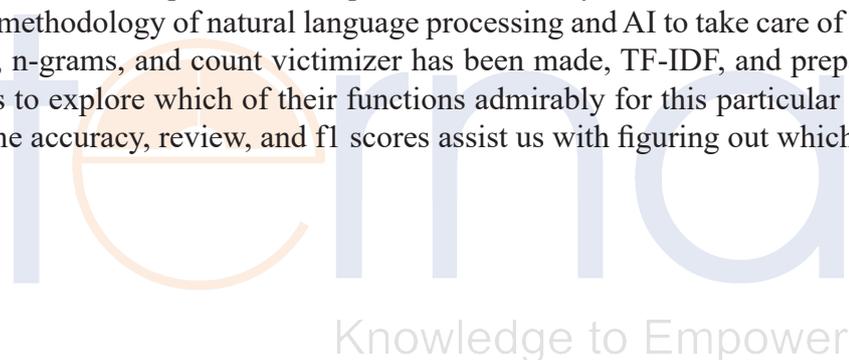
School of Engineering Sciences & Technology, Jamia Hamdard

Dr. Tabrez Nafis

School of Engineering Sciences & Technology, Jamia Hamdard

Abstract

As time goes on information, particularly text data increments dramatically. Alongside the information, how we might interpret AI likewise increments and the figuring power empowers us to prepare extremely complicated and huge models quicker. Bogus news has been assembling a great deal of consideration overall as of late. The impacts can be political, monetary, hierarchical, or even private. This paper examines the methodology of natural language processing and AI to take care of this issue. Utilization of bag-of-words, n-grams, and count vectorizer has been made, TF-IDF, and prepared the information on five classifiers to explore which of their functions admirably for this particular dataset of marked news statements. The accuracy, review, and f1 scores assist us with figuring out which model works best.



Genomic data science and COVID -19 Genome Analysis using Bio python

Mansi

Department of Mathematics- University Institute of Sciences, Chandigarh University, Gharuan, Punjab, India

Dr Vishwajeet Goswami

Department of Mathematics- University Institute of Sciences, Chandigarh University, Gharuan, Punjab, India

Dr Aashima Bangia

Department of Mathematics- University Institute of Sciences, Chandigarh University, Gharuan, Punjab, India

Abstract

The last few years have been amazing for biology and healthcare and the best thing that happens in this field was the human genome project .it was an international research project with the goal of mapping and understanding the entire human genome .data science is the field in which we study data, understand the data to get valuable insight from that. Data science has already become an umbrella under which every industry and field comes. We can work in medical, marketing, Information technology, and every other field, even far before data science comes into the real world, we were using statistical and computational knowledge to get an outcome from our data. But today with the grace of the internet and social media our ability to decipher the information from that data is out of our range, where data science has come as a saviour. Because of the amount of genomic data being generated it become essential that the field of genomics or biology must be combined with modern technology and tools so that we can properly analyze such big data for precise and accurate prediction of disease and prevention mechanisms for that, which ultimately will result in improved human health. The data collected from a single week-long sequence today can create more data than whole genome research done a few years ago. “Bioinformatics”, “computational genomics” and “genomic data science” are all very similar fields. To provide biological insights in these disciplines, we must be able to process and analyse huge genomics datasets, as well as validate the processed data’s quality and transform it. Afterwards, depending on the nature of our issue, we must apply statistical or machine-learning models. The most likely scenario is to first perform some dimension reduction and clustering, then visualisation. In this paper, I will use python to pass my accountancies over genomic data science and genomic data analysis.

Keywords

Data science, genomics, python, data analysis, bioinformatics, bio python.

Autonomous Car for Indian Terrain

Prof. St. Patil

Vishwakarma Institute of Technology

Aryan Pravin Aher

Vishwakarma Institute of Technology

Aarushi Bhate

Vishwakarma Institute of Technology

Adnan Shaikh

Vishwakarma Institute of Technology

Sandhya Vinukonda

Vishwakarma Institute of Technology

Abstract

In recent years, autonomous vehicle (AV) technology has improved dramatically. Self-driving cars have the potential to transform urban mobility in India by offering sustainable, convenient, and congestion-free transportation. However, India confronts challenges such as potholes and the need for enhanced lane detection to make autonomous vehicles a reality. The project's central goal is to create a Convolution Neural Network (CNN) model that can scan and identify its surroundings and move. This paper proposes a project which is accomplished by training CNN with a dataset of images and videos to perform advanced lane identification, pothole recognition, and sophisticated object detection.

Keywords

Autonomous vehicles, Deep learning, OpenCV, Indian terrain

Selection of optimal Additive Manufacturing Technology for Polymer Composite

Praveen

Research scholar, J.C. Bose University of Science and Technology, YMCA, Faridabad, Haryana, India
praveenchch@gmail.com

Dr.Rajeev Saha

Assistant professor, J.C. Bose University of Science and Technology, YMCA, Faridabad, Haryana, India

Dr.Sandeep Grover

Professor, J.C. Bose University of Science and Technology, YMCA, Faridabad, Haryana, India

Abstract

Additive manufacturing commonly known as 3D printing is a type of manufacturing process which is based on an additive layer approach. Three-dimensional objects are created from the CAD model (computer-aided design) by adding two-dimensional layers. Metals, ceramics, polymers & composites are some of the most popular materials in 3D printing. Polymer and polymer composites printing are becoming more popular because of their certain features of low cost, lightweight and chemical resistance. Recycled polymers are also being 3D printed in order to decrease the product cost as a part of circular economy. Polymer Composites can be printed by different additive manufacturing techniques. In this article comparison is being done of various three-dimensional printing technology for polymer composite printing and optimal technology has been suggested. Different composite materials for 3D printing, circular economy and polymer recycling methods, comparison of the various properties of printed parts, application areas of 3D printed composite parts in various fields, use of recycled materials in 3D printing is also being discussed in the article.

Keywords

Additive manufacturing, Polymer composites, Recycled polymers, 3D printing

Prediction of Human Emotions by Neural Oscillations

Payal Mahajan

School of Advanced Sciences, VIT-AP University, Amaravati, Andhra Pradesh, India

Dr Anjali Gautam

Assistant Professor, JK Lakshmi Pat University, Jaipur, Rajasthan, India

Dr Lisna P C

School of Advanced Sciences, VIT-AP University, Amaravati, Andhra Pradesh, India

Abstract

Brainwave, better known as neural oscillation is generally a neural oscillation or an electric impulse which is repetitive, often referred to as a rhythmic activity formed due to the interaction between various neurons in the CNS (Central Nervous System). All the neurons sync with the help of pacemaker cells or through the ability of the neurons to quickly sync up which is also referred to as entrainment. Brainwaves can be read using EEG method. Electroencephalography, or EEG, is a method used to measure neural oscillations within the brain. In this method, certain electrodes are placed on the patient's scalp to note the data regarding electrical functioning of neurons in cerebral cortex. EEG identifies the impulses or waves created during the time of a billion neurons being active all together and it also notes the signals from specific places around each electrode. It basically provides a diagram or a graph of electrical activity in the brain represented as waves having different frequency, shape and amplitude. EEG is particularly used to measure brain activity during a particular event like losing a competition, accomplishing something or even feeling sleepy. These types of brain activities are called event-related potential. In this paper we will be predicting emotional sentiments using various machine learning algorithms. We have performed statistical extraction of brainwaves to create a larger dataset that is then reduced to a much smaller dataset by feature selection method for experimentation. In general, we have focused on three sentiments – Positive, negative and neutral. Algorithms like – Logistic Regression (with/without PCA-Principal Component Analysis), Support Vector Machine (SVM), Random Forest, XG Boost have been used and then their predictions are used to get to a conclusion.

Keywords

Neural Oscillation, EEG, Logistic Regression, SVM, Random Forest, XG Boost, PCA.

Video-Based Person Re-Identification using Semi-Coupled Dictionary Learning with Relaxation Label Space Transformation

Sree Sankar.J

Assistant Professor, Dept. of CSE, Karunya institute of Technology and Sciences, Tamil Nadu, India
sreesankar@karunya.edu

Jayalakshmi P K

Assistant Professor, Dept. of BME, Karunya institute of Technology and Sciences, Tamil Nadu, India
jayalakshmi@karunya.edu

Sreedeeep Krishnan

Assistant Professor, Dept. of Robotics & Automation, Adi Shankara institute of Engineering and Technology, Kerala, India, sreedeeep.ae@adishankara.ac.in

Ranjeesh R Chandran

Assistant Professor, Dept. of Robotics & Automation, Adi Shankara institute of Engineering and Technology, Kerala, India, ranjeesh.ae@adishankara.ac.in

Abstract

Matching people across multiple camera views known as person re-identification, is a challenging problem due to the change in visual appearance caused by varying lighting conditions. The perceived color of the subject appears to be different under different illuminations. Previous works use color as it is or address these challenges by designing color spaces focusing on a specific cue. In this paper, we propose an approach for learning color patterns from pixels sampled from images across two camera views. The intuition behind this work is that, even though varying lighting conditions across views affect the pixel values of same color, the final representation of a particular color should be stable and invariant to these variations, i.e. they should be encoded with the same values. We model color feature generation as a learning problem by jointly learning a linear transformation and a dictionary to encode pixel values. We also analyze different photometric invariant color spaces as well as popular color constancy algorithm for person re-identification.

Index Terms

Person re-identification, Semi-Coupled Dictionary Learning, Relaxation Label Space Transformation, L-BFGS gradient based optimization

Multi Sensor Data Fusion based Parallel Manipulator with lot monitoring employing Machine Learning

Shreyanth S

Department of Electronics and Communication Engineering, Anna University, Chennai
shreyanth0810@gmail.com

Abstract

A simple robotic parallel manipulator is implemented by employing embedded systems integrated with a set of sensors. More than one type of sensor is implemented together with the control input data from a human limb. Initially, a data set is collected on the map to certain equivalent actuations at the manipulator, and then using an appropriate machine learning algorithm the control data value for the continuous position of the actuator is generated. A substantial amount of work is done on mapping the position of the limb to the actuator position by creating a three-dimensional model conventional 3D conversion is used on the boundary values of the input and output matched with a certain level of intermediate values a proper training dataset for a machine learning algorithm can be created. The position of the manipulator is monitored by an IoT system, a set of sensors installed at the end, and Applied Sciences and transmits The Possession date of the equator is this information can be viewed remotely from any device connected to the internet.

Index Terms

Actuator, Computational Algorithm Logic, Computational Neural Network (CNN), Flex Sensor, Intelligent Systems, Internet of Things, Linear Regression, Machine Learning, Parallel Manipulator, Robotic Gripper.

Multimodal recognition using dominant region of imperfect face and gait cues using Median-LBPF and Median-LBPG based PCA followed by LDA

Santhi N

Assistant Professor, Department of Computer Science, V.V.Vanniaperumal College for Women, Virudhunagar, Tamilnadu, santhi@vvvcollege.org

Annbuselvi K

Associate Professor, Department of Computer Science, V.V.Vanniaperumal College for Women, Virudhunagar, Tamilnadu, nnbuselvi@vvvcollege.org

S. Sivakumar

Principal, Cardamom Planters' Association College, Bodinayakanur, Tamilnadu, a, sivaku2002@yahoo.com

Abstract

The Multimodal Biometric System which incorporates face and gait cues has primarily focused on recognition from perfect face and gait images. There are situations when perfect face and gait images are unavailable, resulting in imperfect probing images. This paper is aimed to recognize using only the dominant region of such imperfect face and gait images, which contain more information than that possessed by the other regions. Initially the given imperfect face and gait images are divided into six overlapped half regions called top, bottom, left, right, vertical center, horizontally center. After partition the dominant overlapped region is selected by using content based image retrieval process, where the region with highest variance is considered as dominant region. Subsequently the features of dominant overlapped face and gait regions are represented by using Median Local Binary Pattern of Face image (Median-LBPF) and Gait image (Median-LBPG). Followed by the eigen feature vectors are constructed and the dimensionality of the eigen vectors are reduced by a two stage feature reduction algorithms Principal Component Analysis (PCA) followed by Linear Discriminant Analysis (LDA). For classification and taking the face and gait decision, the Euclidean similarity distance measure is used to calculate the minimum distance between the dominant overlapped region of given imperfect face and gait test images and the corresponding all images in the dominant class region in the training sets. The feature vector with minimum similarity distance is considered as face and gait decision. Finally the face and gait decisions are integrated at decision level for recognition. The methods are tested by using publically available data sets ORL face and CASIA gait. The efficiency of the method is verified with the results.

Keywords

Multimodal; Imperfect Dominant Region, Median-LBPF and Median-LBPG; PCA followed by LDA; Decision Fusion.

Predictive Model on Fake News Detection using Supervised Machine Learning Algorithms in Real-Time

Dr. Bechoo Lal

Associate Professor, Dept. of Computer Science & Engineering, KL- University Vijayavada Campus, Andhra Pradesh, India, bechoolal@kluniversity.in

Dr. Chandrahauns R Chavan

Professor and Former Director, JBIMS, University of Mumbai, Mumbai, India, chandrahauns@gmail.com

Abstract

Background: In this research paper, the researcher builds a predictive model on public health misinformation challenge with real-time data fusion. Public health misinformation is one of the global research issues in health care industries. Since there is no regulatory authority on social media, the quality of news pieces spread in social media is often lower than traditional news sources. In other words, social media also enables the widespread of fake news. Fake news means the false information that is spread deliberately to deceive people. Fake news affects the individuals as well as society. First, fake news can disturb the authenticity balance of the news ecosystem. Second, fake news persuades consumers to accept false or biased stories.

Method: The researcher used the supervised machine learning algorithms such as Logistic Regression, Naive Bayes, Decision Tree and XGboost technique to handle the imbalanced dataset and gives the higher-level accuracy for predictive model, with respect to the predictive model of machine learning. The researcher used the comparative study between logistics regression to, Naive Bayes, Decision Tree and XGboost classifiers the categories of fake news in real time mode. The researcher found that logistic regression is one of the best approaches to find out the public health misinformation challenge with real-time data fusion with high accuracy level.

Results: The researcher analyzed the comparative study on public health misinformation challenge with real-time data fusion and found that Logistic Regression 77.95%, XGB Classifier 77.75%, Naive Bayes 71.94%, and Decision Tree 68.23%. The data analysis report shows that the predictive model is having similar accuracy of Logistic Regression 77.95%, XGB Classifier 77.75% to predict the public health misinformation challenge with real-time data fusion.

Conclusion. Finally the researcher concluded that the predictive model is more accurate and can be capable to handle imbalance dataset. The predictive model is verifying at 77.95% accuracy level to predict the public health misinformation challenge with real-time data fusion. The researcher is giving assurance that this predictive model would be benefits for the health care industries to handle the miss information/ fake news so that the misleading statistics should not be generated in human being.

Keywords

XG-Boost, Predictive, Machine Learning, Data Fusion

Design of a charging station for batteries in electric vehicles

R. Santhoshkumar

Electrical and Electronics Engineering, Sri Ramakrishna Engineering College, Coimbatore, India,
santhoshkumarajendran@gmail.com.

Dr.S. Suresh

Electrical and Electronics Engineering, KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore, India,
engrsuresh@gmail.com

Abstract

Electric vehicles have emerged as the greatest short-term answer to reducing greenhouse gas emissions as the demand for green transportation solutions rises. Because it takes 4–8 hours to fully charge an electric car's battery using the Level I and II charging stations now in use, conventional vehicle drivers are still reluctant to utilise this new technology. Because of this, Level III fast-charging stations that may cut the charging time to 10-15 minutes are being created. In the current thesis, two stationary energy storage systems—a flywheel and a super capacitor—are employed in addition to the electrical grid to create a fast-charging station for electric vehicles. The link between the energy sources and the charging stations is developed with power electronic converters. The energy management that will reduce the battery charging time is another area of attention during design development. Because of this, a mathematically formulated technique that reduces durations is necessary, and its use in quick charging will be demonstrated.

Keywords

charging station, electric vehicle, batteries

connecting engineers... developing research

Strength and Weakness of Design and Build Scheme in the Procurement of Government Projects

Ni Komang Armaeni

Lecturer of Engineering Science Doctoral Study Program, Faculty of Engineering, Udayana University, Denpasar, Bali, Indonesia, norkmarmaeni1978@gmail.com

Dewa Ketut Sudarsana

Doctoral Student of Engineering Science Doctoral Study Program, Faculty of Engineering, Udayana University, Denpasar, Bali, Indonesia, dksudarsana@unud.ac.id

Anak Agung Diah Parami Dewi

Doctoral Student of Engineering Science Doctoral Study Program, Faculty of Engineering, Udayana University, Denpasar, Bali, Indonesia, anakagungdewi@unud.ac.id

G.A.P. Candra Dharmayanti

Doctoral Student of Engineering Science Doctoral Study Program, Faculty of Engineering, Udayana University, Denpasar, Bali, Indonesia, candra_dharmayanti@unud.ac.id

Ngakan Ketut Acwin Dwijendra

Doctoral Student of Engineering Science Doctoral Study Program, Faculty of Engineering, Udayana University, Denpasar, Bali, Indonesia, acwin@unud.ac.id

Abstract

A literature review found that there is an alternative project procurement system that can address the weaknesses of the DBB project procurement system, namely the design and build (DB) project procurement system. The DB project procurement system is considered to have better performance than other project procurement systems. To implement the DB project procurement system, it is necessary to know the advantages and disadvantages of the DB project. This study was conducted by reviewing several articles discussing DB in the hope that it could be useful to guide the improvement of the implementation of the DB project procurement system in local government projects in Indonesia.

Keywords

procurement system, strength, weakness, design and build, government projects.

Construction Management Control in the Covid-19 Period

Case Study: General Hospital Project in Golo Bilas Village, Komodo District, Indonesia

I Komang Agus Ariana

Department of Civil Engineering, Faculty of Engineering and Informatics, Universitas Pendidikan Nasional, Denpasar, Bali, Indonesia, agusariana@undiknas.ac.id

Ngakan Ketut Acwin Dwijendra

Doctoral Study Program in Engineering, Faculty of Engineering, Udayana University, Denpasar, Bali, Indonesia, acwin@unud.ac.id

Ngakan Made Anom Wiryasa

Doctoral Study Program in Engineering, Faculty of Engineering, Udayana University, Denpasar, Bali, Indonesia

Anak Agung Gde Agung Yana

Doctoral Study Program in Engineering, Faculty of Engineering, Udayana University, Denpasar, Bali, Indonesia

Abstract

COVID-19 greatly affects tourism in Labuan Bajo and to anticipate the addition of COVID-19 patients in Labuan Bajo, planning the development of health facilities for the community in Labuan Bajo is very important because until now, no one has been able to predict when this pandemic will end. This study wanted to find out how to control the construction management system (time, cost, quality) in the phase 1B general hospital construction project in Golo Bilas Village, Komodo District, West Manggarai Regency. The research method used is by distributing questionnaires to the parties involved in the development. The data analysis technique is the Simple Linear Regression Test with the SPSS program. The results of the study show the role of the Supervisory Consultant is very important in Quality Management with 28.1% positive influence and the dominant indicator is Improving Product Quality by 3.71 points. The role of the Supervisory Consultant is very important in Cost Management with 38.4% positive influence and the dominant indicators are Making Financial Reports and Financial Problem Solutions by 3.70 points. The role of the Supervisory Consultant is very important in Time Management with 41.5% positive influence and the dominant indicator is Timely Procurement of Materials by 3.70 points.

Keywords

control, cost, quality, time, SPSS.

Pornographic Image Sensor Information System Based on Android Using Convolutional Neural Network Method

Ahmad Cahyono Adi

Tanjungpura University, Pontianak, Indonesia

Renny Puspita Sari

Tanjungpura University, Pontianak, Indonesia

Syahru Rahmayuda

Tanjungpura University, Pontianak, Indonesia

Ilhamsyah

Tanjungpura University, Pontianak, Indonesia

Ferdy Febrianto

Tanjungpura University, Pontianak, Indonesia

Abstract

The Indonesian state has legal rules regarding the prohibition of pornography, in addition to legal regulations the Indonesian government through the Ministry of Communication and Information seeks to limit the circulation of content by blocking it through "Internet Positif". However, the efforts made are still not effective to limit the circulation of pornographic content on the Internet. The android-based pornographic image information system is designed to censor pornographic images that appear on the screen using the Convolutional Neural Network (CNN) method. CNN detects using the VGG16 model where each incoming image will be processed with the model architecture that has been created. This model is carried out using training data and testing data, then the model will be implemented to detect images. The accuracy results obtained are 81.5% the system can classify pornographic images and implemented in the form of a system. Measurement of success parameters using a Likert scale involving 30 respondents. The results obtained are 87.5% with the application category "very good".

Development of Sustainable Biobricks Using Agro wastes

Prof. D Ashwini

Assistant Professor, Department of Civil Engineering, Maharaja Institute of Technology, Mysore, ashusujadhan@gmail.com

Mr. Pujith H C

UG Student Department of Civil Engineering, Maharaja Institute of Technology, Mysore, pujith2001@gmail.com,

Ms. Nishchitha Y

UG Student Department of Civil Engineering, Maharaja Institute of Technology, Mysore, nishchithayn22@gmail.com

Mr. Kiran Kumar M

UG Student Department of Civil Engineering, Maharaja Institute of Technology, Mysore, kiransan60@gmail.com

Mr. Reethan U

UG Student Department of Civil Engineering, Maharaja Institute of Technology, Mysore, reethangowda111@gmail.com

Abstract

Building construction is one of the fastest growing industries in India and it puts a huge burden on its limited natural resources. Fired clay bricks are one of the major constituent materials for the construction industry and it produces a huge amount of greenhouse gases. This research tries to highlight the use of alternative materials and how they can be modulated to suit the Indian construction industry solution. Agricultural waste burning is a significant source of pollution in India, especially after the harvesting season. Bio-bricks was developed as an alternative and sustainable building material that is made up of agricultural waste. And at the same time will also lead to the reduction of air pollution and create new jobs at the grassroots level. This defines the relationship between Bio-Bricks and circular economy model and its benefits to the rural economy and society as a whole. It also documents the process of initial testing and product development. The product development process followed the methodology of the design cycle, i.e. explore, conceptualise, build, test and reflect cyclically to generate products apt for the construction industry. Product started with creating biobricks, followed by initial experiments to determine physical properties. Manufacturing of Bio- Bricks has the potential to eliminate the problem of disposal of agricultural waste at source. It can create a new economic model for farmers and lead to the development of agriculture-based industries. The development of Bio-Bricks was based on the three fundamentals of Circular Economy, i.e., “reduce, reuse and recycle”. Manufacturing of Bio- Bricks can substitute a part of burnt clay bricks there by reducing loss of topsoil. The demand for such bio-bricks will lead to development of new green and sustainable industries and create new jobs at grass root levels.

Index Terms

Bio-bricks, Agro-wastes, Wheat husk, Compression Strength Test, Sustainability.

Prediction of Health of the Post Harvested Pomegranate Fruits Using Magnetic Resonance Imaging and Machine Learning

Surekha Yakatpure

Asst Prof A G Patil Institute of Technology Solapur, surekha.sakhare@gmail.com

Dr. Krupa Rasane

Prof ,HOD ECE, Jain college of Engg, Belagavi, Karnataka, kru_ran@yahoo.com

Dr. K Dhinesh Babu

Senior Scientist ,NRCPSolapur, ckdhinesh@gmail.com

Abstract

The Pomegranate fruit has gained popularity owing to its nutritional values and pharmacological properties. India being the largest producer of pomegranates in the world hence there is tremendous potential for its export and food processing. Here in our work the Bhagwa, a prime Indian pomegranate cultivar has been studied. In our work physiochemical features such as total soluble solids (TSS),pH, acidity and firmness are measured experimentally. Internal images of the fruit were obtained non-destructively using Magnetic resonance Imaging (MRI). The textural features obtained by GLCM (Gray Level Covariance Matrix) from image were used to predict the healthy and unhealthy state of the fruit after storage. The prediction accuracy and f1-score over different machine learning algorithms has been studied. This study shows that MRI has higher potential for evaluating the physiochemical values and state of the health of Pomegranate fruit non-destructively which can help in post-harvest management of the fruit along with machine learning techniques.

Index Terms

Gray Level Covariance Matrix, Healthy , Magnetic resonance Imaging, Machine Learning, Prediction accuracy, F1-score

Selection Combining Diversity for Fisher Snedecor Composite Fading Model under Interference

Anjali Singh

Electronics and Communication Engineering MIET, Meerut Uttar Pradesh, India anjali.singh.mt.ec.2020@miet.ac.in

Hari Shankar

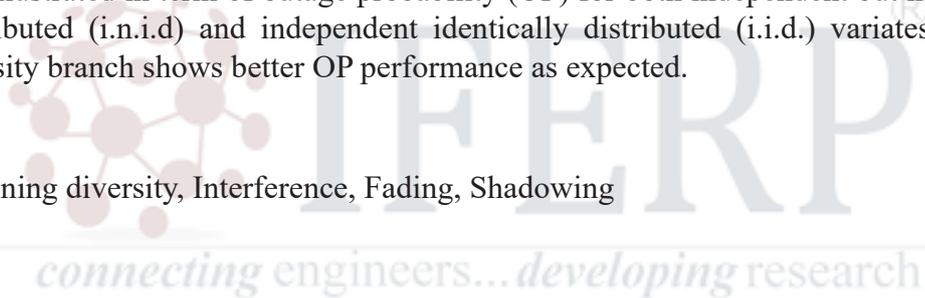
Electronics and Communication Engineering MIET, Meerut Uttar Pradesh, India hari.shankar55@gmail.com

Abstract

This paper presents performance of Fisher Snedecor (\mathcal{F}) fading model with selection combining (SC) diversity scheme over interference limited system. At first, the statistics such as probability density function (PDF) and cumulative distribution function (CDF) are derived without SC diversity under single user interference. After that, the expressions of CDF and PDF for SC diversity are computed. The result of PDF is presented for different desired and interferer multipath fading parameters. The results are also illustrated in term of outage probability (OP) for both independent but not necessarily identically distributed (i.n.i.d) and independent identically distributed (i.i.d.) variates. The higher number of diversity branch shows better OP performance as expected.

Keywords

Selection Combining diversity, Interference, Fading, Shadowing



Solar Cell Trends and the Future: A Review

A. Garga

Department of Electronics & Communication Engineering, Meerut Institute of Engineering & Technology, Meerut, UP, India, Affiliated to Dr. A P J Abdul Kalam Technical University, Lucknow, UP, India. ratnes123@gmail.com

R. K. Ratnesha

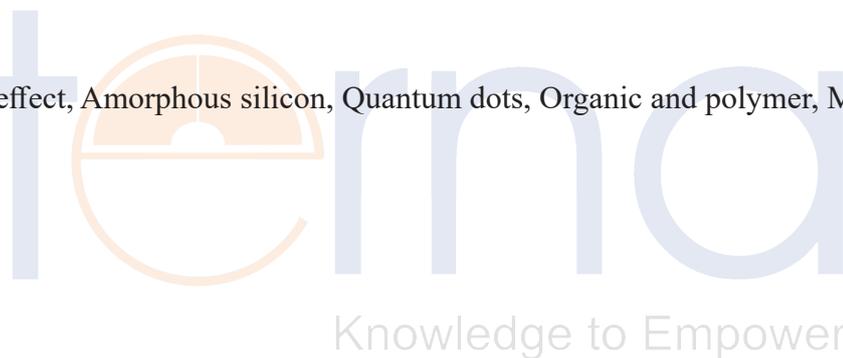
Department of Electronics & Communication Engineering, Meerut Institute of Engineering & Technology, Meerut, UP, India, Affiliated to Dr. A P J Abdul Kalam Technical University, Lucknow, UP, India. ratneshwar.ratnesh@miet.ac.in

Abstract

In this review paper, we highlight about the generations and types of solar cells. The development in solar cells have seen a rapid advancement in the efficiency and quality of various materials, in the recent years. Moreover, this paper elaborates about the dye-sensitized, perovskites, multi-junction solar cells and also the latest and future of solar cells that is organic and polymer solar cells. The objective of this paper is to introduce the solar cells and analyzing the performance of various solar cells.

Keywords

Photovoltaic effect, Amorphous silicon, Quantum dots, Organic and polymer, Multi-Junction.



Fabricating a Raman Spectrometer

Pankaj Upadhyay

Dept of Instrumentation Technology GU Post Graduate Centre Raichur, Karnataka apankajsmith18@gmail.com

Pobbti. Bhaskar

Dept of Instrumentation Technology GU Post Graduate Centre Raichur, Karnataka apankajsmith18@gmail.com

Abstract

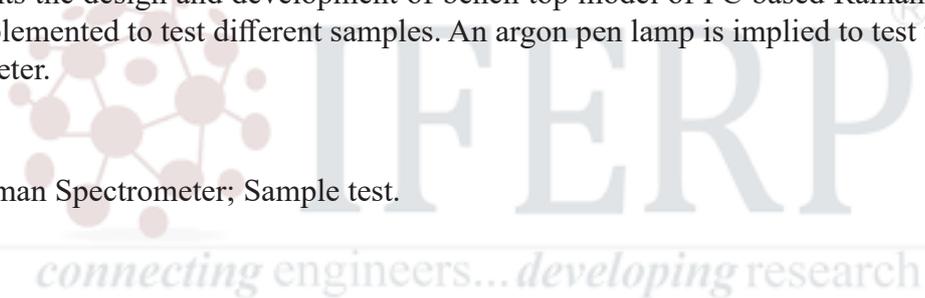
Pharmaceutical, Food and Beverages, Chemical products are increasing with the development of technologies and industries. Valid production and testing is challenging with mass production. A non-invasive, nondestructive, versatile efficient technique is required to test. Detection of the sample requires adept methodology to analyzed sample multiple times without erosion. Raman spectroscopic analysis fits for the said purpose.

Raman spectrometer is a versatile spectroscopic technique uses inelastic scattering detection technique to analyze materials. It is a fast, non-invasive and not-destructive technique used in industries and fits for in-line measurement.

This paper presents the design and development of bench top model of PC based Raman spectrometer which can be implemented to test different samples. An argon pen lamp is implied to test the fabricated Raman Spectrometer.

Key words

Argon Lamp; Raman Spectrometer; Sample test.



Soliton propagation and its Applications

Ankita Bhatt

ABESEC Ghaziabad

Udit Kotnis

ABESEC Ghaziabad

Abstract

Solitons in a nonlinear dispersive medium refer to pulses which appear to be unaffected by the chromatic dispersion as the nonlinear refractive index of the medium nullifies the chromatic dispersion. Therefore, these pulses remain chromatically and temporally coherent over large distances and leads to a very high Bandwidth Link-length product. Some important properties of solitons are given as follows.

1. They do not change shape during propagation because they are eigen functions of the nonlinear wave motion,
2. They do not interfere while crossing, in a nonlinear medium.
3. They are stable attractors of the dynamics.

In terms more familiar to electronic engineers, solitons in a non-linear medium remain coherent, follow the superposition principle and have a tendency to recover from small variations like noise. So, as sine waves are the basis of all analysis and communication in linear media, solitons lend themselves to communication in non-linear media. The property of superposition lends them to high speed WDM networks which usually suffer from non-linear effects. In this paper we discuss about soliton modelling, the interaction of solitons, change in phase and shape of solitons in time domain, interaction between two solitons in a media and ideal soliton distribution analysis. Solitons have application in pure mathematical areas such as differential equations, Lie groups, Lie algebra etc to pure biological construct like circulatory system, nervous system etc. We can also see solitons in the study of plasma that consists of a large number of charge particles. Many applications in nature as well as various biological phenomenon have been highlighted.

Cascaded Multilevel Inverter – Based 15 level Multilevel Inverter with Reduced number of Switches for PV Applications

Mrs.M.Anusuya

Assistant Professor, Department of Electrical and Electronics Engineering, Dhanalakshmi Srinivasan Institute of Technology, Trichy, Tamil Nadu, India. anusuyaeee20@gmail.com

Dr.R.Geetha

Associate Professor, Department of Electrical Engineering, Annamalai University, Annamalai Nagar, Tamil Nadu, India

Abstract

A new single-phase of fifteen levels Cascaded DC-interface Converter (CDDCLC) is proposed in this examination work for sunlight based photovoltaic (PV) applications. This topology is facilitated with the help of DC chopper and H- interface inverter. In CDDCLC structure, the DC-interface voltage is cultivated through the DC-associate module with diminished inverter voltage stress compared to that of the conventional three-level and seven-level inverters. The phantom thickness of intensity in the products of exchanging recurrence is decreased. This research work focuses on the reduction of voltage stress through the inverter, elimination of power switches, DC sources, filter components and gate driver units. These are the various aspects which make the framework savvier much preferred over traditional staggered inverters (MLI). The proposed CDDCLC topology produces better power output than conventional multilevel inverters. The Phase Opposition and Phase Disposition PWM (POPD PWM) techniques are used for DC- Link converter switching to achieve the quality of output power. A re-enactment and model of fifteen-level CDDCLC topology is created and its exhibition is examined for different working conditions. The Internet of things (IoT) describes the network of physical objects (things) or objects that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the Internet. By implementing IoT in CDCDL C we can track the parameters like current, voltage, etc. in real-time. Also, we can control the loads connected to the converter either manually.

Predictive Maintenance of Induction Motors Using IOT (cayenne)

Keerthiga

Assistant Professor, Department of Electrical and Electronics Engineering, Dhanalakshmi Srinivasan Institute of Technology, Trichy, Tamil Nadu, India, keerthigarogo.1993@gmail.com

T.V.Vanitha

Assistant Professor, Department of Electrical Engineering, Dhanalakshmi Srinivasan Institute of Technology, Trichy Tamil Nadu, India, poomavani@gmail.com

Abstract

In our project we approach a new method of IOT for predicting the conditions of induction motor. Safety of human is the most valuable thing. Risking of human is not acceptable it is a need to find a outcome for reducing the mortality of human lives due to circuit breaks . The sensor values gives a broad view about the induction motor's condition which is necessary for the prediction. The given system has overcome the errors and higher efficiency than the current image processing methods. By using the multiple sensors the health condition of the induction motor is monitored and viewed by using the mobile app(cayenne). In this paper, frequency distribution of vibration signals with the purpose of characterizing working status of induction motors like current, voltage and temperature and also updated in the IoT based application. It combines feature extraction procedure with classification task together to achieve automated and intelligent fault diagnosis.

Knowledge to Empower

Design of Low Power and High Speed FinFET Based Multiplexers

Sadem Sai Kiran

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Udumula Rohini

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Vagu Ganga Sai Vivek

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Vanapalli Keerthi

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Palavalasa Saritha

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Jami Venkata Suman

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Abstract

The conventional CMOS technology leads to short channel effects, which manifest because of the fast increase with the current technologies. The multiplexer is a combinational logic circuit designed to switch one of several input lines to a single common output line. VLSI technology enables designers to fit more gates onto a single integrated circuit. But the design multiplexer using various logics like CMOS logic requires more number of transistors. In this paper, we proposed a FinFET based multiplexer which minimizes the number of transistors, power consumption and delay. FinFET based multiplexer design is proposed and simulations are performed using the CADENCE tool and the results are compared with existing technology designs. Our proposed design achieves 85% reduction in power dissipation and 81% reduction in delay when compared to existing technologies.

Design and Performance Evaluation of FinFET Based Full Adder

Reddy Venkatesh

UG Student, Department of ECE, GMR Institute of Technology, Rajam, India
19341a04d3@gmrit.edu.in

Ronanki Harika

UG Student, Department of ECE, GMR Institute of Technology, Rajam, India

Talagapu Ankitha

UG Student, Department of ECE, GMR Institute of Technology, Rajam, India

Thodupuri Yogesh

UG Student, Department of ECE, GMR Institute of Technology, Rajam, India

Yarlagadda Anvitha

UG Student, Department of ECE, GMR Institute of Technology, Rajam, India

Jami Venkata Suman

Assistant Professor, Department of ECE, GMR Institute of Technology, Rajam, India
venkatasuman.j@gmrit.edu.in

Abstract

The semiconductor circuit designing method has been subjected to diverse problems and challenges due to the fast increase in current technologies. The Full Adder (FA) is a versatile component that is mostly employed in addition and multiplication as the fundamental processing unit in several designs found in Very Large Scale Integration (VLSI) and Digital Signal Processing (DSP) applications. VLSI technology enables designers to fit more gates onto a single Integrated Circuit (IC). In this paper, FinFET-based full adders are designed and simulated using Cadence Virtuoso tool. Furthermore, we have compared our proposed design with the existing techniques. The comparisons are made concerning the number of transistors, consumed power, and delay. From the simulation results, we observed that the proposed design minimizes 44% and 68.3% of power consumption and delay respectively compared to the existing FinFET based designs.

Index Terms

VLSI, FinFET Technology, GDI, PTL, CMOS, Full Adder, Delay, Power consumption.

A Study of Relationship of Demographic Factors with Customer Satisfaction of Electric Vehicles Usage in India Using Chi-Square Techniques

Ayush Kumar Singh

Student, B.Tech, Future Institute of Technology, ayushkumarsingh1703@gmail.com

Dr. Udit Chawla

Associate Professor Business Administration, University of Engineering and Management dr.uditchawla@gmail.com

Sarabjot Singh

Student, B.Tech, Vellore Institute of Technology, sarabjotsingh2624@gmail.com

Swecha Ram

Student, B.Tech, Future Institute of Technology, sweccharam2@gmail.com

Abstract

Electronic cars are being introduced to the car market in the form of hybrid vehicles, which were previously popular. There are still and will be guidelines for the operation of these vehicles to reduce the chance of occupants and personnel being exposed to risks such as damaging chemicals, toxic gases, fire, and electric shock in the event of an accident. Some builders claim to be collaborating with freeing groups to advance appropriate solutions for dealing with crashes. The New Car Assessment Program (NCAP) has exposed various gasoline-electric hybrid vehicles to forward counterweight crash tests, side impact tests, and side pole tests. There were no issues with the electrical systems or the batteries. Tests have often utilized cars powered by lead-acid or nickel-metal hydride batteries. Lithium-ion batteries are becoming increasingly common, and they may pose new risks to crash-test and release employees. In theory, fully electronic and electric hybrid vehicles pose additional forms of post-crash dangers. However, it is emphasized that understanding electric cars is incomplete and that information will need to be revised when new information becomes available. Car manufacturers have also invested enormous resources in establishing safe and trustworthy electrical structures for the current age group of electric vehicles. A major incident using a lithium-ion automobile battery is regarded as exceedingly uncommon, although crash test groups and salvage organizations are aware of and prepared for the potential hazards.

Keywords

E-Vehicle, Battery Technology, Electric charging station, Emission

GA-RSM Modelling and Optimization for Enhancement of Tensile Strength of Fibre Reinforced composites

Parth Patpatiya

School of Automation Banasthali Vidyapith Rajasthan

Abstract

This study develops a prediction model for tensile strength using the polyjet method, which considerably improves the tensile performance of thermoplastic components and minimizes the number of superfluous experimental tries. GA-RSM (Genetic Algorithm - Response Surface Methodology) algorithm is employed to determine the effect of significant reinforcing parameters such as filler shape, filler volume concentration, and filler position. The polyjet-fabricated composite specimens are put to tensile strength tests in which the Genetic Algorithm (GA) is employed to optimize the outputs, and the results are shown to be consistent with experimental findings. This research enhances fabrication standards by analyzing the effect of critical reinforcing factors and polyjet printing variables on the tensile performance of manufactured components. The study may lead to the replacement of metal components in various industry verticals needing high tensile strength, including the automotive, aerospace, electronics, healthcare, and food packaging industries.

Keywords

Additive Manufacturing, Polyjet, Fibre-reinforced, composite, Tensile Strength, GA-RSM

Knowledge to Empower

An analysis of various machine learning techniques for predicting diabetes in its early stages

Putta Durga

Vellore Institute of Technology, Amaravati, AP, India

Abstract

Diabetes is a chronic metabolic disease marked by elevated blood glucose levels, which over time cause substantial damage to the coronary heart, blood vessels, eyes, kidneys, and nerves. The most prevalent kind of diabetes, known as type 2, usually affects adults and is brought on when the body stops producing enough insulin or becomes resistant to it. The prevalence of type 2 diabetes has sharply increased during the past three decades in nations of all income levels. Juvenile diabetes or insulin-structured diabetes, also known as type 1 diabetes, is a chronic illness in which the pancreas generates little to no insulin on its own. Access to affordable medications, such as insulin, is essential for those who have diabetes to survive. Making predictions from clinical data is one of these challenges. In the field of information technology, gadget mastering is a developing scientific discipline that deals with the methods through which machines learn from experience. By combining the findings of multiple machine learning techniques, the goal of this study is to develop a machine that can accurately detect diabetes in a patient early on. Additionally, this project is pursuing a suggestion for a potent method for the early identification of diabetic disease.

Keywords

Machine Learning, Disease Prediction, Random Forest, Logistic Regression

Property Registration Using Blockchain

Dr. S.T Patil

Computer Department, Vishwakarma Institute of Technology, Pune, India, patil.st@vit.edu

Sushil Waghmode

Computer Department, Vishwakarma Institute of Technology, Pune, India, sushil.waghmode18@vit.edu

Zaid Sayed

Computer Department, Vishwakarma Institute of Technology, Pune, India, zaid.sayed18@vit.edu

Shubham Teli

Computer Department, Vishwakarma Institute of Technology, Pune, India, shubham.teli18@vit.edu

Saurabh Waghmare

Computer Department, Vishwakarma Institute of Technology, Pune, India, saurabh.waghmare18@vit.edu

Abstract

This paper aims at proposing a method for property registration using blockchain technology. Existing property registration methods have many inherent flaws which can be overcome when we look at them through the lens of blockchain technology. Blockchain use cases exist whenever there is sensitive information involved. To solve these problems a decentralized application or DAPP was made using flutter as the front-end and the backend is a smart contract incorporating all the rules and regulations of the property transfer. The dapp was deployed on the polygon network. IPFS – a decentralized file storage system was used in this dapp to make the storage of sensitive files like registration papers more secure.

Keywords

Blockchain, smart contract, dapp, flutter, polygon, IPFS

A Study on Comparative Analysis of Two Stochastic Models for Single Unit footwear Machine

Rinku

Baba Mastnath University, Rohtak, Haryana

Abstract

Since footwear industry is playing an important role in the society and is also vital for overall industrial growth, it is necessary that the footwear industry may perform well. Therefore, the main concern of an industry is to maintain system performance measures such as reliability, availability, busy period of repairmen etc. to achieve high profit and productivity of the system. Present paper deals with the analysis of a single unit paper machine having electrical/mechanical fault. These faults are further bifurcated into minor, major and neglected faults. Here two stochastic models of footwear machine have been discussed for comparison thereof. In model-1, all neglected faults revolve to be major faults due to delay in maintenance whereas in model-2, neglected faults sorted out automatically under preventive maintenance. However, in both the models, minor faults are assumed as repairable and major faults are non-repairable. In both the models, various measures of system effectiveness such as MTSF, Reliability, Expected up time and busy period of repairman have been obtained using Semi Markov Process and Regenerative Point Technique. Finally, the comparison of both models with respect to reliability and profit has been carried out using graphs and numerical calculations. Conclusions are drawn on the basis of graphs, which may be helpful for the maintenance team of the footwear machine.

connecting engineers... developing research

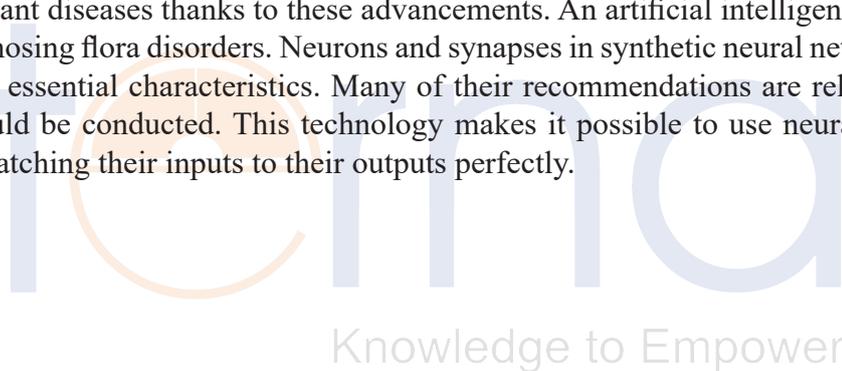
Plant Disease Detection Using Machine Learning

Sumendra Nath Singh

R.B.S. Engineering Technical Campus, Bichpuri, Agra

Abstract

With the world's population growing, it is vital that food crops and medicinal plants be developed. A model that can help us understand the process more comprehensively will be explored. Based on a thorough understanding, we are exploring a model that will enable us to extract the precise information and in-depth knowledge we require. There are many plants that contract lethal diseases every year, including food plants. This reduces their output rates. We must employ automated methods to locate the issue inside the facility if we do not want manufacturing prices to rise. The detection of plant diseases can be automated through robotics and image processing. As a result of recent technological advancements, we now have the ability to simplify our artwork. A deep learning and image processing approach can increase the efficiency of detection processes. A great deal of progress has been made in diagnosing plant diseases thanks to these advancements. An artificial intelligence model was trained to assist in diagnosing flora disorders. Neurons and synapses in synthetic neural networks closely resemble intelligence's essential characteristics. Many of their recommendations are related to how supervised research should be conducted. This technology makes it possible to use neural networks to simulate devices by matching their inputs to their outputs perfectly.



Hate speech detection using machine learning

Mansi Tomar

R.B.S. Engineering Technical Campus, Bichpuri, Agra

Abstract

Information exchange and the use of social media have greatly benefited humanity. There has been an increase in hate speech messages, however, as a result of its use. Various machine learning algorithms and feature engineering methodologies were implemented in subsequent research to automatically identify hate speech messages on various datasets. This was done in order to address this growing issue on social media platforms. There is no study that compares feature engineering methodologies and machine learning algorithms on a shared dataset that is publicly available to determine which method and algorithm perform best. Using eight machine learning algorithms and three different classes of feature engineering methodologies, the study evaluates the performance on a publicly available dataset. A support vector machine model based on bigram features provided the highest overall accuracy of more than 90% according to the testing results. As a result of our study, automated hate speech transmissions can be located by using a reference point. Furthermore, cutting-edge approaches to automatic text classification systems will also be compared as a result of several comparisons. Due to social media's user-friendly platform, which enables people and groups to express their opinions and discuss their interests freely, hate speech online is spread, which is regarded as a serious problem on the internet due to its potential to harm individuals and society as a whole.

connecting engineers... developing research

An Optimized Deep learning Method for Detecting Covid-19 using Ultrasound Images

Shailesh Sharma

M.Tech. Scholar , R.B.S. Engineering Technical Campus, Bichpuri, Agra, shaileshsharma014@gmail.com

Brajesh Kumar Singh

Professor, R.B.S. Engineering Technical Campus, Bichpuri, Agra, brajesh1678@gmail.com

Abstract

It has been highlighted that the COVID-19 pandemic, in particular, has exposed healthcare services worldwide to a vulnerable position, particularly in developing countries. The COVID-19 virus is an emerging infectious disease, so patients must be screened and diagnosed quickly during this pandemic. Using lung ultrasound to diagnose acute respiratory distress syndrome, a potentially life-threatening condition in people with COVID-19, is a cost-effective and widely accessible diagnostic tool. By using this method, it is possible to recognize significant characteristics of images and pleural effusions. These characteristics may help the clinician determine the level of disease as well as monitor and detect it as early as possible. The use of portable ultrasound transducers makes it feasible to retrieve lung ultrasound images very quickly. In this paper, a deep neural network has been proposed for interpreting lung ultrasound images in a fast and reliable manner. A dataset of 2,824 lung ultrasound images (POCUS) consisting of 818 COVID-19 images, 722 pneumonia images, and 1284 regular images was collected. Further, image loading is done with pipeline as part of training pipeline. An array of image names with their corresponding locations will be loaded by this function as the data to be loaded. Once the dataset is batch-processed into the 32-grid system, analysis is carried out. This network will use 3 layers of convolutional layers, 2 layers of maximum pooling, 1 layer of fully connected layers, and 1 layer of global average pooling.

Index Terms

COVID-19, Ultrasound Images, Convolutional Neural Network, Deep Learning

Security and privacy aspect of AI and IoT in Healthcare Industry: A Comprehensive Review

Dr. Neeraj Chugh

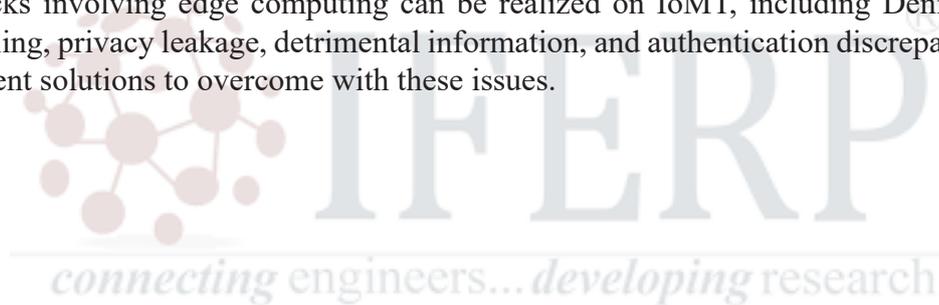
University of Petroleum and Energy Studies, Dehradun, Uttarakhand

Dr. Mitali Chugh

University of Petroleum and Energy Studies, Dehradun, Uttarakhand

Abstract

Surveillance Camping Surveillance Camping Surveillance Two of the fastest-growing technologies in the healthcare industry are the Internet of Medical Things (IoMT) and artificial intelligence (AI). From diagnosis to therapy, AI has the potential to improve many aspects of healthcare. Use of IoMT in healthcare has been sparked by the COVID-19 epidemic. IoMT devices are often limited in terms of memory, storage, battery capacity, and connectivity. However, the presence of this intermediate infrastructure adds to the authentication issues. The focus of this paper is to survey several adversarial attacks involving edge computing can be realized on IoMT, including Denial of Service (DoS), data stealing, privacy leakage, detrimental information, and authentication discrepancies etc. and to discuss different solutions to overcome with these issues.



Impact of Anomaly on Performance in IoT enabled Smart City, A Review

Dr. Neeraj Chugh

University of Petroleum and Energy Studies, Dehradun, Uttarakhand

Dr. Mitali Chugh

University of Petroleum and Energy Studies, Dehradun, Uttarakhand

Abstract

Smart cities have been developing recently as a result of the extensive use of Internet of Things (IoT) technologies. A smart city makes use of Internet of Things (IoT)-enabled technologies, communications, and applications to maximize operational efficiency, improve the quality of services offered by service providers, and improve the wellbeing and quality of life of its residents while also generating a significant amount of valuable big data. However, as smart city networks expand, the potential of cybersecurity threats and attacks also rises. IoT devices coupled to sensors linked to massive cloud servers inside a smart city network are vulnerable to threats and malicious assaults. Very few security procedures have been taken into account because these devices were made to connect with one another more effectively. Anomaly analysis is a crucial component of numerous scientific study domains. This activity has recently been expanded to include social networking and social internetworking, where many networks communicate with one another. It is crucial to develop strategies to thwart such attacks and shield IoT devices from malfunction. The review of risks and countermeasures for IoT-enabled smart cities is the main emphasis of this article.

Keywords

IoT, Anomaly, Smart City, Security, Big Data.

Knowledge to Empower

Study the effect of Green Nanoparticles on Biomedical waste –biomedical moulding sand properties for casting applications

Prasad Raikar

Visvesvaraya Technological University Belagavi

Abstract

This Paper is an effort to introduce green nanotechnology technique in solid waste management. Solid wastes are generated from domestic, industrial, agricultural, commercial, health care and individual activities etc. Biomedical Waste is growing as a result of population growth, urbanisation, construction activities, and improper medical waste disposal, which is causing widespread polluting of the environment. Due to its inability to biodegrade, waste disposal has consequently become a significant issue on a worldwide scale. Research is being carried out to develop ways for environment friendly disposal of biomedical wastes. Here authors work is focused on biomedical solid waste ash being used partially or wholly in the green sand mould instead of silica sand. Also, to enhance the molding properties for better casing quality by using nanoparticles prepared in laboratory by green nanotechnology technique.

The main objective of the work is preparation and characteristic study of modified biomedical waste used in green sand moulding for casting industry. The sand silica in green sand molding material is replaced by biomedical waste. Nanoparticles are synthesized by green nano technology technique used as an additive in bio medical waste which will be treated as modified bio medical waste.

In present work the preparation and characteristic studies of CuO nano particles and bio medical waste are carried out for enhancements to the qualities of green sand moulds and casting quality. This study evaluated the influence of nano particles on biomedical waste which helps in metal molding applications.

Lung Cancer Detection using Machine Learning Technique

Vipul Parmar

M.Tech. Scholar, R.B.S. Engineering Technical Campus, Bichpuri, Agra, Writetovipulparmar@gmail.com

Lavkush Sharma

Assistant Professor, R.B.S. Engineering Technical Campus, Bichpuri, Agra, Lavkush07@gmail.com

Brajesh Kumar Singh

Professor, R.B.S. Engineering Technical Campus, Bichpuri, Agra, Brajesh1678@gmail.com

Abstract

There are two primary objectives of this study. The first being to identify the early stages of lung cancer. The second being to investigate how accurate various machine learning algorithms are at identifying this stage of disease. After reviewing a large collection of literature, we noticed that certain classification methods exhibit low accuracy. Others, on the other hand, have the highest objective, but are far from being able to achieve 100% accuracy. Consequently, insufficient accuracy is the result of inadequate handling of DICOM pictures, as well as significant installation costs. Medical image processing requires a wide variety of picture formats. However, CT scans are typically chosen due to their low levels of noise, which makes them ideal for medical imaging. Deep learning has shown itself to be a highly successful method for the processing of medical images. This method enables the recognition and classification of lung nodules, the extraction of features, and the prediction of lung cancer stage. For the initial stage of this system, image processing methods were applied to extract lung areas from the images. The segmentation of the data is done using the K Means method. To classify the segmented images, several machine learning algorithms are applied to the data after it is extracted, based on the characteristics of the segmented images. In order to evaluate the efficiency of the suggested approaches, we use performance parameters such as accuracy, sensitivity, specificity, and classification time.

Index Terms

Lung Cancer, Machine Learning, Detection, Deep learning.

Experimental and Numerical study on Socketed Pile in Soft Rock

Vedprakash Maralapalle

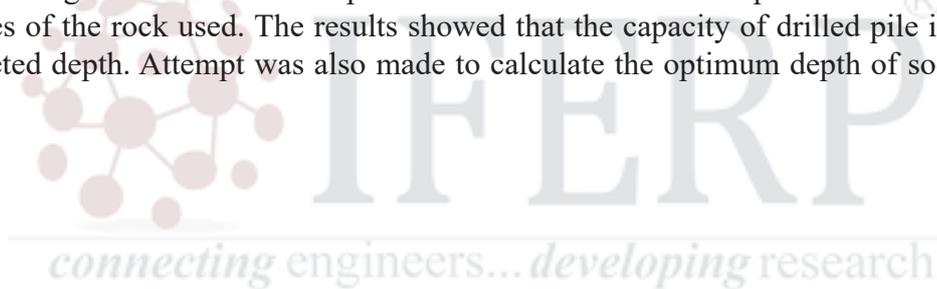
MPSTME, NMIMS University, Mumbai

Dr. Ramachandra Hegde

MPSTME, NMIMS University, Mumbai

Abstract

Since three - four decades, many projects such as Mumbai-metro, bridges, multi-story buildings, and other structures, pile foundation systems are used in Mumbai. The pile transfers the superstructure load to the sub structure i.e., to rock layers by means of end bearing resistance and skin friction. In this study, an attempt is made to investigate the behavior of socketed pile in soft rock. A series of rock socketed small scale model pile load tests were carried out using the loading frame in the laboratory. load tests were performed by using Model Steel Pile in the laboratory to calculate axial capacity of pile with different socketed lengths. Unconfined compression test was conducted on pseudo rock samples to find out the properties of the rock used. The results showed that the capacity of drilled pile increases with increasing socketed depth. Attempt was also made to calculate the optimum depth of socketed pile in soft rock



Economic Analysis Of Inflation: The Regime Switching Approach

Jai Prakash Pandey

Research Scholar, Lovely Professional University, Punjab, getjpg@gmail.com

Dr. Gurpreet Kaur

Assistant Professor, Lovely Professional University, Punjab, preeeti30@gmail.com

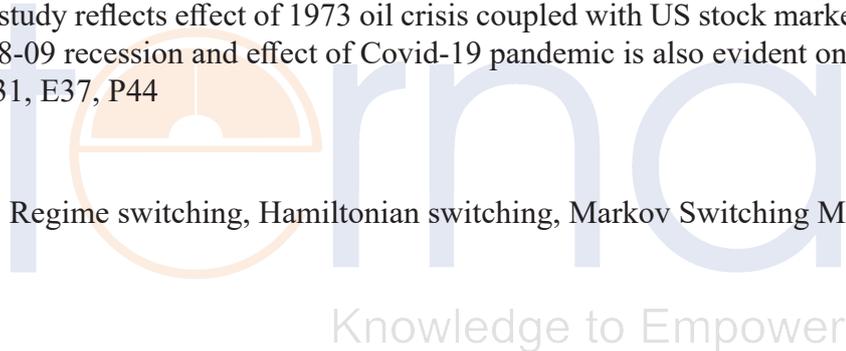
Abstract

The purpose of this study is to identify and estimate the inflation based on regime switching model. The sixty years data set on consumer prices for India is obtained from World Bank. This study employed Markov regime switching model using simple switching regression (OPG - BHHH/ Marquardt) rather than legacy methods to forecast the time series. The estimation equation corresponding to four regime switching model replicates the actual time series of Consumer Price Index. The study explains and estimates the effects of underlying triggers such economic shocks, pandemic etc. on the movements of inflation. The study reflects effect of 1973 oil crisis coupled with US stock market crash of 1973-74. The impact of 2008-09 recession and effect of Covid-19 pandemic is also evident on the inflation.

GEL Code: E31, E37, P44

Key words

Inflation, CPI, Regime switching, Hamiltonian switching, Markov Switching Models



An Analytical Study of Digital Healthcare: Issues and Challenges

Azhar Eqbal

Department of Computer Science & Engineering, Jamia Hamdard, New Delhi
azhareqbalazhar@gmail.com

Md Tabrez Nafis

Department of Computer Science & Engineering, Jamia Hamdard, New Delhi
tabrez.nafis@gmail.com

Syed Mohd Faisal Malik

Department of Computer Science & Engineering, Jamia Hamdard, New Delhi
fslmalik9@gmail.com

Abstract

This paper had featured the basic parts of advanced medical care and its application in medical services settings. The present status and the issues and difficulties related with the advances were additionally distinguished. It was observed that they are still moderately new, with issues actually cantered around precision, plan, and security and protection. By and by, the beneficial thing about the issues and difficulties in advanced medical services is that they would be able be overseen and settled by a few arising innovations: security and protection through blockchain and distributed computing, precision using artificial intelligence procedures, and ultimately, plan using UI/UX, what's more, moderate web applications (PWAs). What's more, with currently various sorts, taking note of that is fundamental carrying out the apparatuses in computerized medical services isn't expected to supplant clinical experts however all things considered to supplement the current frameworks through help in the clinical mediations.

Index Terms

Healthcare, Digitalization, Electronic Medical Record, Blockchain,

A Fuzzy Based Optimization Approach and a Deep Learning Classifier for Parkinson's Disease Prediction

Sabeena.B

Research Scholar, Department of Computer Science and Engineering, Avinashilingam Institute for Home Science and Education for Women, School of Engineering, Coimbatore, India., sabeena.bheeman@gmail.com

Dr.S.Sivakumari

Professor, Department of Computer Science and Engineering, Avinashilingam Institute for Home Science and Education for Women, School of Engineering, Coimbatore, India., prof.sivakumari@gmail.com

Abstract

Patients with Parkinson's disease receive insufficient treatment due to inadequate, irregular symptom monitoring, infrequent care, and minimal physician engagement, which results in decreased decision-making effectiveness and less-than-ideal patient health-based outcomes. People frequently experience voice difficulties in the early stages of PD. Therefore, the primary research for PD focused on the vocal problem-based diagnosis technique. In the feature selection approach, redundant and/or unnecessary features are removed. Using the objective function, these selected attributes produce the best results. It is an NP-hard (Nondeterministic Polynomial-time hard) problem in the majority of the scenarios. In the last five years, the database size has grown, necessitating feature selection prior to using any categorization algorithm. The Fuzzy Monarch Butterfly Optimization Algorithm (FMBOA) feature selection algorithm is presented in this paper as a solution to this issue. This approach increases the PD detection rate by choosing the dataset's most crucial attributes. In order to reduce the number of dimensions in the dataset, the KPCA (Kernel-based Principal Component Analysis) dimensionality approach was first introduced. The second method is FBOA-based feature selection, and the key variable used to choose the best features for PD classification is weight value. The weight value in the proposed FMBOA algorithm is calculated using the Gaussian fuzzy membership function. In the suggested Fuzzy Monarch Butterfly Optimization Algorithm, a novel event is carried out in which the weight value of the Butterfly Optimization Algorithm is altered while carrying out the optimization process to improve the outcomes. The several feature sets that are created via ABOA are utilized in classification methods, and each set has a unique combination of features. For PD classification, the FCBi-LSTM (Fuzzy Convolution Bi-Directional Long Short-Term Memory) was created. The newly developed framework was assessed using the UCI machine learning repository, and LOPO CV was used for performance verification. The variables MCC, f-measure, and accuracy are the ones taken into account when evaluating performance.

Index Terms

Parkinson's Disease (PD), Machine Learning, FCBi-LSTM (Fuzzy Convolution Bi-Directional Long Short-Term Memory), Cross Validation.

A Systematic Review on Machine Learning based IoT Applications in Healthcare

Khuaish Mirza

Department of Computer Science & Engineering, Jamia Hamdard, New Delhi
khuaimirza@gmail.com

Md Tabrez Nafis

Department of Computer Science & Engineering, Jamia Hamdard, New Delhi
tabrez.nafis@gmail.com

Syed Mohd Faisal Malik

Department of Computer Science & Engineering, Jamia Hamdard, New Delhi
fslmalik9@gmail.com

Abstract

IoT (Internet of Things) AI (ML) have wide appropriateness in numerous parts of life, medical services are one of them. With the quick turn of events and improvement of the web, the traditional procedures for patient administrations were reduced and replaced with electronic medical services frameworks. The utilization of IoT innovation offers clinical experts and patients the most current clinical gadget climate. IoT things and AI are important in different characterizations from far away seeing of the cutting-edge environment to mechanical automation. In addition, clinical consideration applications are essentially demonstrating interest in IoT things considering cost decline, straightforward and work on the individual fulfillment of patients. The most recent applications for IoT clinical treatment examined yet dealing with issues in the clinical climate are required for scholarly, imagination-based replies. Explicit, versatile, and implantable IoT model gadgets, explored for computing the information transmission. Implantable advancements lead to the normal replacement of the harmed piece of the human body. The formation of a wearable and implantable medical care body region network confronted a few difficulties that are outlined in this review. In this paper, an outline of IoT and ML in view of medical services care showed exhaustively, the applications that utilization in medical services by consolidating ML for the IoT recorded with all issues and difficulties while involving this application or gadgets for medical services and their significant use. Likewise, calculations utilized by Machine Learning in IoT for creating gadgets are shown by showing past work and arranged every one of them as per the pre-owned strategy.

Index Terms

Internet of Things, Machine Learning, Wearable devices, personalized health care, and implantable devices.

Real Time Indoor CO₂ Detection by Using Thin Film Nanocomposite

Tuan Diny Daud Aiman Tuan Anuar

Department of Electrical & Electronics Engineering, Faculty of Engineering, Universiti Pertahanan Nasional Malaysia (UPNM), 57000 Sg. Besi, Kuala Lumpur, Malaysia, 2180199@alfateh.upnm.edu.my

Khadijah Ismail

Department of Electrical & Electronics Engineering, Faculty of Engineering, Universiti Pertahanan Nasional Malaysia (UPNM), 57000 Sg. Besi, Kuala Lumpur, Malaysia, khadijah@upnm.edu.my

Murniati Syaripuddin

Department of Electrical & Electronics Engineering, Faculty of Engineering, Universiti Pertahanan Nasional Malaysia (UPNM), 57000 Sg. Besi, Kuala Lumpur, Malaysia, murniati@upnm.edu.my

Mohd Salman Mohd Sabri

Department of Electrical & Electronics Engineering, Faculty of Engineering, Universiti Pertahanan Nasional Malaysia (UPNM), 57000 Sg. Besi, Kuala Lumpur, Malaysia

Siti Nooraya Mohd Tawil

Department of Electrical & Electronics Engineering, Faculty of Engineering, Universiti Pertahanan Nasional Malaysia (UPNM), 57000 Sg. Besi, Kuala Lumpur, Malaysia

Abstract

Carbon dioxide (CO₂), which is a colorless acidic gas, could possibly lead to global warming when an excessive amount of the gas spreads to the environment. This work discusses an effective and eco-friendly CO₂ sensor for indoor air monitoring for environment safety. The fabricated sensor is developed by using PEDOT and PEDOT:PSS and PEDOT:PSS/GO nanocomposites. Fabrication of layer PEDOT/GO and PEDOT:PSS/GO nanocomposite on environmentally friendly surfactant paper substrate via drop casting and spin coating method. Based on the results, PEDOT:PSS/GO shows the surface resistance with the lowest resistance, 2.5Ω, conductivity value of 0.4. The nanocomposite shows the best sensitivity toward CO₂ gas due to the dopant of graphene oxide. At room temperature, for CO₂ flow, the fabricated sensor response time is 30 s, with sensor ppm level of 457.663 ppm. With fast response towards CO₂ molecules detection, the fabricated sensor provides promising results for indoor CO₂ monitoring using Blynks application from mobile phone at range distances.

Index Terms

About four key words or phrases in alphabetical order, separated by commas.

Design and verification of AMBA AXI4 for high performance and SOC integration

Y.Gopi Krishna

Sreenidhi Institute of Science and Technology, Hyderabad

Ramaswamy.T

Associate Professor, ECE Dept. Sreenidhi Institute of Science and Technology, Hyderabad

SPV.Subba Rao

Prof & HOD, ECE Dept. Sreenidhi Institute of Science and Technology, Hyderabad

Abstract

This paper explains about verifying the memory transactions of AXI us System Verilog verification environment. Basically memory transaction verification of AXI is performed in the five channels of AXI which used to transfer data, address and control signals. To achieve verification of memory transaction the SV verification environment is used in this project. Design and verification testbench of AXI is coded in System Verilog (SV). Verifying the connectivity between master and respective slave during the write and read cycles and enhancing the memory usage for highspeed burst transfers between master and slave are few important features verified and explained in this paper. In this experimental verification results of AXI, we showed the burst based transactions like read & write of data payload, hand shaking mechanisms between master(testbench) and slave(design) and some of the AXI protocol important features like inter leaving, out of order transactions are achieved and these are simulated in Cadence NCSim tool.

connecting engineers... developing research

Adaptive Rate Control for Wireless Communication System Using Deep Reinforcement Learning

M V K Gayatri Shivani

Student, Dept Of ECE, Sreenidhi Institute of Science & Technology
Science & Technology, mvkgayatrishivani@gmail.com

Dr S P V Subba Rao

Professor, HOD, Dept Of ECE, Sreenidhi Institute of Science & Technology
Science & Technology, spvsubbarao@sreenidhi.edu.in

Dr C N Sujatha

Professor, Dept Of ECE, Sreenidhi Institute of Science & Technology
Science & Technology, cnsujatha@gmail.com

Abstract

Rate Adaption that is selecting an appropriate modulation scheme and coding rate is an important parameter that determines a system's performance. A higher-order modulation scheme delivers more data. But when channel conditions are worse, a higher-order modulation scheme can lead to degraded performance. In such a case having a fixed MCS scheme in a constantly varying channel would mean a compromise with either bit error rate or bit rate. The MCS scheme needs to be varied for an efficient system design based on the channel conditions and interference offered. To tackle the issue, we employ Deep reinforcement learning(DRL) to enable the BS to select an MCS scheme that would deliver a satisfactory transmission rate even in the presence of interference and fading. Furthermore, we study two different DRL algorithms – Deep Q networks and Double Deep Q networks and find that Double Deep Q networks perform better than Deep Q networks.

Index Terms

Modulation and Coding Scheme, Deep Reinforcement Learning, Deep Q networks, Double Deep Q networks

Classification of attacks and Detection of attack using Learning models for IoT Mechanism

Vikas Sejwar

Amity School of Engineering & Technology, Amity University, Jaipur Rajasthan-302006, India, vikassejwar@gmail.com

Mohit Agarwal

Amity School of Engineering & Technology, Amity University, Jaipur Rajasthan-302006, India
magarwall@jpr.amity.edu

Abstract

There are diversities of communication mediums or devices for interaction in Internet of things environment. Any device may operate from one to another medium frequently. However the increase in the number of devices brings convenience, it also raises attacks. Provision of podium to users is as much important as its identification for security. Masquerade Attack, DoS attack, Man-in-middle attack, Guessing attack, Forging attack, Routing attack, Physical attacks are such attacks which can be reason an IoT system misbehavior and failure. This paper presents, survey of several learning models have been compared to predict Masquerade Attack, DoS attack, Man-in-middle attack, Guessing attack, Forging attack, Routing attack, Physical attacks on the IoT systems accurately and also implements different learning models with protocols that are capable to detect attacks. In our work, we have compared different types of attacks which may affect to IoT environment and evaluate IoT authentication mechanism using different learning algorithms.

Keywords

IoT, Attacks, Learning algorithms, Security

connecting engineers... developing research

Background Noise Suppression in hearing aids for online education Using Deep Learning

Dr. S. T. Patil

Professor, Vishwakarma Institute of Technology, Pune. stpatil77@gmail.com, patil.st@vit.edu

Ashwini Patil

Team Lead, Faurecia, Pune. aspatil99@gmail.com

Manjunath Patil

Developer, Ameliorate Solutions, Pune. m spatil99@gmail.com

Abstract

The presence of noise in hearing aids drastically reduces the intelligibility of human speech. In a low SNR setting, however, eliminating the noise without generating artifacts in human speech is a difficult challenge. We attempted to fix the problem by using supervised learning to find a mapping between noisy and clean speech spectra. We recommend specifically employing fully convolutional neural networks, which have fewer parameters than fully connected networks. The Suggested Network, Redundant Convolutional Encoder-Decoder (R-CED), illustrates that a convolutional network maybe 12 times smaller than a recurrent network while still performing better, demonstrating its suitability for an embedded system: hearing aids.

Keywords

Speech Denoising, Fully Convolutional Neural Network, Convolutional, Encoder-Decoder Network, Redundant Convolutional Encoder Network of Decoders.

Knowledge to Empower

Enhanced Framework for Software Defined Wireless Body Area Network Technology

Shanmugavadivel G

Assistant Professor, Department of Electronics and Communication Engineering, M.Kumarasamy College of Engineering, Karur.

Valarmathi S

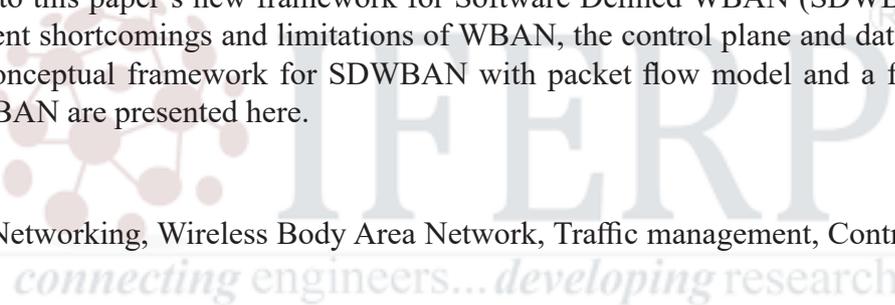
PG Scholar[M.E], Communication Systems, M.Kumarasamy College of Engineering, Karur.

Abstract

SDN (Software Defined Networking) has become a popular alternative to traditional network administration because of its flexibility and dynamic nature. It has piqued the interest of academics and business professionals alike. This is especially true for Wireless Body Area Network (WBAN) applications, where SDN can help address issues such as traffic management, authentication, and energy efficiency while boosting administrative control. WBAN applications can now take advantage of SDN technology thanks to this paper's new framework for Software Defined WBAN (SDWBAN). In order to address the current shortcomings and limitations of WBAN, the control plane and data plane should be decoupled. A conceptual framework for SDWBAN with packet flow model and a future research direction for SDWBAN are presented here.

Keywords

Software Defined Networking, Wireless Body Area Network, Traffic management, Control plane, Data plane



Resource Allocation for Routing Protocol Vehicular Communication in Wireless Networks

Dhivya G

PG Scholar [M.E], Communication Systems, M.Kumarasamy College Of Engineering, Karur, gdivya719@gmail.com

Sridevi A

Professor, Department Of Electronics and Communication Engineering, M.Kumarasamy College Of Engineering, Karur, sridevia.ece@mkce.ac

Abstract

Vehicle-to-vehicle (V2V) communications comprises a wireless network where automobiles send messages to each other with information about what they're doing. This data would include speed, location, and direction of travel, braking, and loss of stability. Vehicle-to-vehicle technology uses dedicated short-range communications (DSRC), a standard set forth by bodies like FCC and ISO. One of the most significant obstacles in decreasing the supply voltage is the large transistor count and 5th loss problem. By selecting proper (W/L) ratio we can minimize the power dissipation without decreasing the supply voltage. Adders are the basic building blocks in digital integrated circuit based designs. Ripple Carry Adder (RCA) gives the most compact design but takes longer computation time. The time critical applications use Carry Look-ahead scheme (CLA) to derive fast results but they lead to increase in area. In this paper, thus, we develop a novel maximum connected load-balancing cover tree (MCLCT) algorithm to achieve full coverage as well as BS-connectivity of each sensing node by dynamically forming load-balanced routing cover trees. Such a task is particularly formulated as a maximum cover tree problem, which has been proved to be nondeterministic polynomial complete. The proposed MCLCT consists of two components: 1) a coverage-optimizing recursive heuristic for coverage management and 2) a probabilistic load-balancing strategy for routing path determination.

Malicious TCP/IP packets detection using anomalous TTL values with the help of SNORT

Geetika Sharma

MTech Scholar Researcher, Madhav Institute of Technology & Science, Gwalior

Abstract

In this digital era, everything is digital, like entertainment, education, business, etc. Therefore, the need for the internet is increasing as well as cybercrimes are rising too. This study explores whether network packets can be malicious or legitimate. It is observed that on the internet, normally a TCP/IP packet passes through up to 32 nodes before it reaches a destination host. Our research shows that some IP packets exhibit an anomalous time-to-live (TTL) value that deviates from the initial TTL by more than 32 hops. These packets are probably produced by special software. We assume that malicious IP packets have odd TTL values, which depend on the protocol such as TCP, UDP, and ICMP and the operating system of the source machine. To measure the effectiveness and usefulness of the proposed approach, an experiment has been carried out using the SNORT NIDS system. Signature-based filtering rules have been developed to scrutinise the traffic. Real network and DARPA and MACCDC 2012 current datasets have been applied as input to the SNORT NIDS and it is observed that the proposed approach successfully captures the anomalous packets.

Keywords

NIDS, SNORT, NETWORK SECURITY

connecting engineers... developing research

A Novel approach of True Random Number Generation using Tree based Interleaver

Prateek Agnihotri

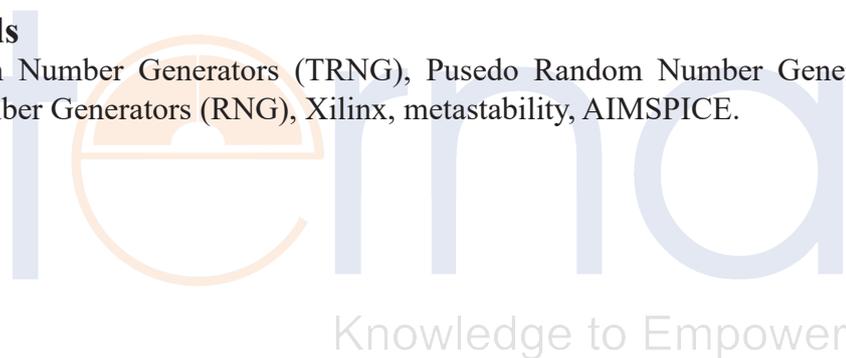
Electronics Engineering Department, HBTU Kanpur, India, 200205004@HBTU.AC.IN

Abstract

In this paper we propose a new method for generation of TRNG using tree based interleaving technique. The output of one oscillator is send to SIPO register using a XOR gate. The other input of XOR gate is kept at '1'. The property of XOR gate is that the output bit will be independent if its input bits are independent. After the SIPO register the output is connected to the XOR based postprocessor. Among Von Neuman, BCH code and XOR based preprocessor we have used XOR based preprocessor due to ease of implementation. Finally, for implementing tree based interleaving multiplexer is used with its select lines connected to binary up down counter.

Index words

True Random Number Generators (TRNG), Pusedo Random Number Generators (PRNG), Xilinx, Random Number Generators (RNG), Xilinx, metastability, AIMSPICE.



AI based Reliable and secure data transfer in Wireless Networks

Padam Vamsi VijayaKrishna

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Nistala Sravya

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Pattela Tagore Sai Gopi

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Jaddu Prema Sai

GMR Institute of Technology, Rajam, Andhra Pradesh, India

P. Kalyanchakravarthi

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Abstract

Day to day rapid growth of population increase more congestion areas in cities as like this utilization of data also increases rapidly. To capture, store and process data taken from different devices which are valuable source of information is become more challenge. However, such rich source of information is mostly left untapped. Authentication technology provides access control for systems by checking to see if a user's credentials match the credentials in a database of authorized users or in a data authentication server. With the help of AI, validate the data and select the bandwidth requirement for transmission. This project proposes the use of Artificial Intelligence (AI) for monitoring the data traffic which can be used to examine data considerably more quickly.

Designing of Mimo Antenna Using Meta Surface for 5G Applications

N.Gowthami

GMR Institute of Technology, Rajam, Andhra Pradesh, India

M.Chandru

GMR Institute of Technology, Rajam, Andhra Pradesh, India

K.Jyothi Swaroop

GMR Institute of Technology, Rajam, Andhra Pradesh, India

J.Chiranjeevi

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Dr.TVS Divakar

GMR Institute of Technology, Rajam, Andhra Pradesh, India

Abstract

The aim of this project is to design an antenna for 5G applications. For 5G mobile network high directivity antennas are required. It can be achieved by using the antenna arrays. But the usage of antenna array at low frequencies will increase the size and complexity of the whole network. Therefore, a metasurface (MS) is proposed to direct surface current and to have high gain and multibeam properties. To achieve that, a unit cell metasurface is implemented as a superstrate to a single square patch antenna. The manipulation of this hybrid metasurface configuration can create opposite current flow on the unit cell and thus split the beam. By using this an antenna will be designed for 5G applications.

Knowledge to Empower

Parkinson's Disease Tremor Suppression using Gyroscopic Effect

Abhishek S. Bandsode

College of Engineering Pune, bandsodeas20.elec@coep.ac.in

Archana G. Thosar

College of Engineering Pune, agt.elec@coep.ac.in

Abstract

This paper proposed a method for suppressing hand tremors in Parkinson's disease (PD) patients who have difficulty controlling objects and performing basic tasks such as writing, walking, sleeping, and eating, as well as a portable mobile application-based tool for frequency analysis. Currently available therapies for parkinsonian tremors, such as medications and brain surgery, possess varying degrees of success and have a high risk of severe side effects. Wearable tremor neutralizing systems are being developed and designed for Parkinson's disease (PD) patients' fingers and wrists. Wearable technology uses the concept of the gyroscopic effect to reduce Parkinson's disease tremors in the hand of patients. The mechanical gyroscope-based model creates a gyroscopic effect by using a high-speed rotating brass disc in a gyroscope to neutralize any hand tremors. The portable mobile application-based tool has a mobile application that provides an accurate estimation of limb tremors in Parkinson's disease (PD) patients. The proposed tool will assist physicians in clinics as well as assess patients' conditions remotely and communicate results to the neurologist.

Index Terms

Gyroscopic effect, Mechanical gyroscope, Smartphone, Parkinson's disease (PD), Parkinsonian hand tremor.

Design & Analysis of Permanent Magnet Linear Generator using FEM Based Software

Rushikesh Nakure

College of Engineering Pune, nakurerr20.elec@coep.ac.in

Archana G. Thosar

College of Engineering Pune, agt.elec@coep.ac.in

Abstract

This paper presents the design of an efficient Permanent Magnet Linear Generator (PMLG). This linear generator is used for extraction of ocean wave energy. Among all, linear machines have highest efficiency because of direct wave energy conversion without need of intermediate stage. The free-piston linear generator (FPLG) is one of the major applications of PMLG. It is an energy converter which offers benefits including good efficiency, high power density, and reduced emissions. Therefore, for Hybrid Electrical Vehicles (HEVs), the FPLG is considered as a potential alternative hybrid power system. In this paper, construction and operation of PMLG is explained first. Implementation of 2D PMLG design is done using MAXWELL 2D. For designing this machine, standard design steps/methods are followed. Implementation of calculated design parameters of linear generator is done using Ansys & Maxwell software to validate output results and various flux patterns. Various design parameters such as stroke length, interior stator diameter, slot pitch, air gap, pole pitch etc. are calculated and then these analytical results used for implementation of design in Ansys and Maxwell software. 3D model of PMLG includes helix coil and magnet. Helix coil is considered as stator part and magnet will move inside it. Various results such as induced voltage, position of magnet, induced current etc. is presented in this paper.

Index Terms

Finite Element Analysis, Free-Piston Linear Generator, Linear Machine, Permanent Magnet Linear Generator.

Low Power Electronic Transformer Design for Medium Voltage Application

Akash More

Department of Electrical Engineering Collage of Engineering Pune, India morear20.elec@coep.ac.in

Archana G.Thosar

Department of Electrical Engineering Collage of Engineering Pune, India agt.elec@coep.ac.in

Uday Sanvatsarkar

CGPISL Nashik, India uday.sanvatsarkar@cgglobal.com

Santosh Bhong

CGPISL Nashik, India santosh.bhong@cgglobal.com

Abstract

The increasing use of smart meters in power system industries has increased the need for low-power electronic transformers. There was a technological gap established when the old electromechanical relays were replaced with the new digitalized microprocessor-based relays without improving the old instrument transformer techniques. In this paper, the designed low power electronic transformer is based on the Rogowski coil-based current transformer. By simulating the equivalent circuit of the whole model in software for the 100A-2000A range, an appropriate low-power signal is obtained at the output, then amplified and integrated using an operational amplifier for further digitalization for smart meters or automated substations. By analyzing all parameters, the appropriate parameters for a low-power electronic transformer are obtained. The designed low-power electronic transformer has fewer overall costs, lower weight, small size, high bandwidth, accurate operation, and compatibility with the computer network in the digitalized substation and is highly immune to electromagnetic interference in the substation.

Keywords

Current sensor, Rogowski coil, Current Transformer (CT), Low-Power Current Transformer (LPCT), Operational Amplifier.

Estimation of Stray Losses near the Bushing Region of Transformer Tank

Aishwarya Rajendra Giri

College of Engineering Pune, aishwaryarg20.elec@coep.ac.in

Archana G. Thosar

College of Engineering Pune, agt.elec@coep.ac.in

Abstract

Throughout transformer there is a small percentage of power loss. These losses produce localized heating which deteriorate its operation. Calculating these losses at the design stage is utmost important. There are mainly no-load and load losses. No-load losses are core losses, associated with driving flux through the core and energizing the transformer. The load loss of a transformer comprises of windings loss, ohmic resistance and some auxiliary losses, known as stray losses. When compared with small transformers, with the rating the stray field strength increases much faster. In large rating transformer, of the total load- losses, the stray losses contribute about 20-25%. Which include circulating current loss and eddy current loss in tank, core edge, frame, windings, flitch plate and structural parts. To accurately estimate the transformer stray loss, analysis of the parameters and factors that contribute to it is necessary. There are various methods for the estimation and computation of these losses. In this work a MATLAB program is being developed based on analytical formulations for calculating distribution of the magnetic field and the eddy current losses in the transformer region where bushings are staged wherein stainless-steel insert (SSI) is considered for the transformer tank. Analysis of several cases was done considering various dissimilar non-magnetic insert sizes. Additionally, a numerical study by using a 2D (two dimensional) FE (finite element) axisymmetric model was developed to validate the analytical results. Further, a Machine learning model is being developed to estimate the stray loss in the tank region of the transformer.

Index Terms

power transformer, analytical methods, finite element method, stray losses, machine learning model.

Design and Operation of 40kW Bidirectional Fast Charger and Wide Voltage Range of EV

Shreya D. Hiradeve

College of Engineering Pune, hiradevesd20.elec@coep.ac.in

Archana G. Thosar

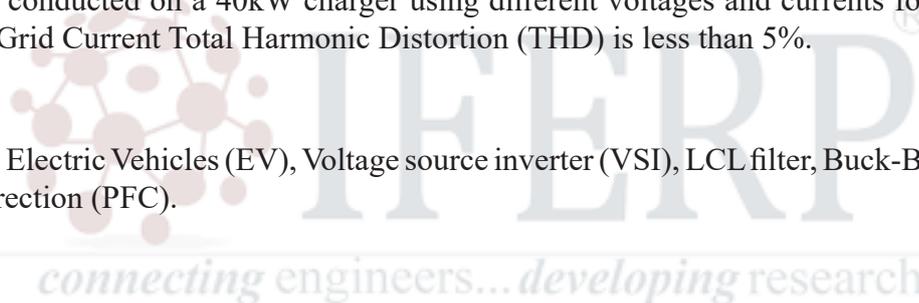
College of Engineering Pune, agt.elec@coep.ac.in

Abstract

The present paper presents a novel unity power factor bidirectional battery charger based on a comprehensive control approach. The charger includes an AC-DC converter and a DC-DC converter for charging the vehicle's battery. Using vector control, the converter works both as an AC-DC converter for rectification and as a DC-AC converter for inversion. This DC-DC Converter uses CC-CV charging mode to control the Buck Boost Converter. LCL filters are designed to reduce harmonics of grid-injected currents. We demonstrated the proposed approach and validate it in Simulink using a 330-V battery charger. Tests are conducted on a 40kW charger using different voltages and currents for charging and discharging. The Grid Current Total Harmonic Distortion (THD) is less than 5%.

Index Terms

DC fast Charging, Electric Vehicles (EV), Voltage source inverter (VSI), LCL filter, Buck-Boost converter, Power factor Correction (PFC).



Experimental Investigation on Pile in Rock

Geetanshu Chhajed

College of Engineering, Pune

Dr. Archana G. Thosar

College of Engineering, Pune, agt.elec@coep.ac.in

Abstract

Abstract: A.M., additionally called 3D printing, is the computer-managed sequential layering of substances to provide intricate shapes which are extraordinarily hard to fabricate the usage of conventional techniques. Using both a 3D scanner and computer-aided design (CAD), a 3D digital version of such an item is produced. After analysing the design, the printer applies successive layers of the printing medium (which will be a liquid, powder, or sheet material), which might be then merged or fused to provide the final product. The robot arm class printers and the gantry printers, each with their own advantages and disadvantages, are the two types of 3D printers presently offered for use in the concrete construction industry. We derive the controller's dynamics solution from such a model by analysing the forward kinematics of a 4-DoF robotic arm and computing the attitude of the arm's joints through the use of the inverse kinematic model in this research paper.



A SENS Score of Rheumatoid Arthritis Detection using Customized Convolutional Neural Network

Prof Mate G.S.

SPPU, JSPM's RSCOE, Pune

Dr. A.N. Paithane

SPPU, JSPM's RSCOE, Pune

Dr. N.M. Ranjan

SPPU, JSPM's RSCOE, Pune

Abstract

Rheumatoid arthritis (RA) is a chronic inflammatory disease that may lead to severe joint damage and disability, and sometimes to premature death. Radiology is the gold standard for evaluating joint damage in patients with RA and is often used as an outcome measure in clinical trials. Joint destruction may occur very early in the disease course and may advance at different rates. Early diagnosis and individually tailored treatment are generally accepted as prerequisites for preventing and halting joint damage. Today, rheumatologists are aware of the importance of getting the patient into remission in terms of inflammatory activity, but joint damage may proceed despite clinically inactive disease. To evaluate joint damage by radiographs several scoring methods have been developed. This paper introduces SENS the Convolutional Neural Network (CNN) that can automatically learn the characteristics and predict the class of hand radiographs from a broad data set. For model preparation, the 290 hand x-ray dataset is used. The result indicates that hand x-rays are rated with an accuracy of 94.46% by the proposed methodology. The network sensitivity is 0.95 and 0.82 is the specificity.

Machine Learning and Temporal Graph Networks for Protein Classification Based on Amino Acid Sequencing

Aiswarya K

Center for Computational Engineering & Networking (CEN), Amrita School of Engineering, Coimbatore, Amrita Vishwa Vidyapeetham, India, aiswarya.nandakumar.7@gmail.com

Harishchander Anandaram

Center for Computational Engineering & Networking (CEN), Amrita School of Engineering, Coimbatore, Amrita Vishwa Vidyapeetham, India, a_harishchander@cb.amrita.edu

Abstract

Proteins are very large biomolecules and macromolecules that carry out a plethora of tasks within organisms. They are polymeric amino acid residue chains. Different family types exist for proteins based on their difference in amino acid sequencing. This paper aims to classify protein families based on their amino acid sequencing. Different machine learning models are used for classification and their performance is compared. A relatively new graph-based neural network algorithm, Temporal Graph networks (TGN) is also used for classification. Adaboost, Random Forest, Decision Trees, and Naïve Bayes algorithms are used for classification. We demonstrate that when compared to text-based representations for classification using traditional machine learning and deep learning models, graph-based representations of amino acid sequences for use in Temporal Graph Networks offer noticeably better performance. When conventional machine learning models that use text-based representations perform with an accuracy of 80% approximately, TGN that uses the graph-based representation of amino acid sequence performs with an accuracy of 93%.

Keywords

Temporal Graph Networks, TGN, Proteins, Amino acid sequence, Adaboost, Naïve Bayes, Random Forest, Decision Trees, Graph representation, Text representation.

Knowledge to Empower

IoT-Cloud Architecture for Smart City with LPWAN-5G Connectivity- A Study on Smart Meter Reading Data Acquisition

A.K. Damodaram

Professor, Department of Mechanical Engineering, Sree Vidyanikethan Engineering College (Autonomous), Tirupati, Andhra Pradesh, India, akdamodaram@vidyanikethan.edu

Dr. L. Venkateswara Reddy

Professor, Department of Computer Science & Engineering, KG Reddy College of Engineering & Technology, Hyderabad, Telangana, India, lakkireddy.v@ieee.org

Abstract

The IoT-Cloud architecture offers a unique approach for deployment of a 'drone assisted' real-time data gathering and monitoring energy meters in the smart cities. In spite of the advantages of flexibility, cost-effectiveness, functionality, and availability of the Cloud-Fog architecture comprising present day LPWAN technologies for sensor devices, there is a need for study of various competing architectures and LPWAN algorithms that will support cloud-fog-IoT computing environment. The present article is some studies on present-day technologies for IoT-Cloud Smart city adoptability in 5G environment. A pilot run is simulated using MATLAB SIMULINK to obtain the drone path movement and the smart meter readings were obtained using the same. The article studies and compares compatibility of present-day LPWAN technologies NB-IoT, LoRa, and SigFox for the multi-layer IoT-Cloud architecture for drone assisted smart meter monitoring in smart city environment.

connecting engineers... developing research

Keywords

IoT-Cloud Architecture; LPWAN; Drones; Smart meters; Smart Cities

WLAN Microstrip Patch Antenna: A Review

Ujjawal Tomar

Department of Electronics and Communication Engineering, Meerut Institute of Engineering and Technology, Meerut, India, ujjawal.tomar.mt.ec.2020@miet.ac.in

Subodh Kumar Tripathi

Department of Electronics and Communication Engineering, Meerut Institute of Engineering and Technology, Meerut, India, subodh.tripathi@miet.ac.in

Abstract

The current trend in communication devices of miniaturising the device in question has been necessitated by the necessity of achieving greater efficiency and mobility while maintaining (or even improving) their processing capabilities. This has necessitated the current trend in communication devices. This pattern is inevitable given the pressing need to achieve higher levels of both productivity and portability. This new direction is very necessary given that there is currently no alternative option to achieve these goals other than to continue down this path of growth. Because of the fast growth of wireless communication, there is now a larger need for multiband antennas, which are able to function well over a broad variety of frequency ranges. This need came about as a direct result of the rapid development of wireless communication. However, it is not practical to construct an antenna with such a large bandwidth since many applications need the antenna to function on two or more frequencies that are quite a distance from one another. Consequently, developing an antenna with such a large bandwidth is not possible. This paper reviews the techniques of microstrip patch antenna for wireless applications.

Keywords

Antenna, Patch, Microstrip, Review, Analysis

Simulation Of WLAN Triple Band Microstrip Patch Antenna Using HFSS

Ujjawal Tomar

ECED, Meerut Institute of Engineering and Technology, Meerut, Uttar Pradesh, India
Ujjawal.tomar.mt.ec.2020@miet.ac.in

Subodh Kumar Tripathi

ECED, Meerut Institute of Engineering and Technology, Meerut, Uttar Pradesh, India
subodh.tripathi@miet.ac.in

Abstract

In the work, a microstrip patch antenna with the name slotted patch-defected ground is designed with an operating frequency of 5.75 GHz. This antenna is then analysed on factors such as VSWR, Return Loss, Impedence, and efficiency. These factors are compared to antennas with operating frequencies of 1.8 GHz and 2.45 GHz using a piece of software called High Function Structure Simulator. Because of its compact size and affordable price, the suggested antenna has potential uses in a variety of industries, including mobile and satellite communication, global positioning systems (GPS), and radio frequency identification (RFID) technologies.

Keywords

HFSS, Microstrip Patch Antenna, Return Loss



Comparison of fluoride removal efficacy of D. sissoo based biomass and IRA400Cl ion exchange resin: Batch study for synthetic groundwater

Saurabh Joshi

Department of Chemical Engineering, Banasthali Vidyapith, Rajasthan, India

Somen Jana

Department of Chemical Engineering, Banasthali Vidyapith, Rajasthan, India

Abstract

Present study is the comparison of removal efficiency of D. sissoo derived adsorbents and IRA 400Cl ion exchange resin for aqueous based fluoride. The removal was inversely affected by solution pH for CADs-TADs but favoured by the increment upto 7 pH and decreased later in case of resin. Initial fluoride concentration had negative impact while adsorbent dose, contact time and temperature contributed positively for the removal. The comparative study showed that the resin removed 72% fluoride which was highest among all while CADs and TADs showed 54% and 39% removal. The stated removal was reported at 4 pH, 10 g/L adsorbent dose, 7 mg/L fluoride concentration, 180 min contact time and 25 °C temperature. The regeneration of adsorbent at 10 pH was reported as 82%, 58% and 62% while total cost of 50g adsorbents was calculated as 88 ₹, 720₹ and 800₹ for CADs, TADs, and resin respectively. RSM was also performed to investigate cumulative effect process parameters. The study revealed that CADs is superior adsorbent for fluoride removal compared to TADs and RDS based on removal efficiency, regenerability and economics.

Keywords

D. sissoo, IRA 400Cl, fluoride, regeneration, cost analysis, comparison.

Knowledge to Empower

Design of quad slotted patch antenna at 2.4GHz with DGS

M. Jeevani

GMR Institute of Technology, Department of ECE, GMRIT, Rajam, jeevanimaruvada@gmail.com

P. Murali Krishna

GMR Institute of Technology, Department of ECE, GMRIT, Rajam, muralikrishna7396p@gmail.com

P.N.H. Gowtham

GMR Institute of Technology, Department of ECE, GMRIT, Rajam, gowthamnarahari@gmail.com

J. Raja

GMR Institute of Technology, Department of ECE, GMRIT, Rajam, [rajajarajana@gmail.com

P. Akhil

GMR Institute of Technology, Department of ECE, GMRIT, Rajam, akhilpatnana043@gmail.com

A. Sudhakar

GMR Institute of Technology, Department of ECE, GMRIT, Rajam, sudhakar.a@gmrit.edu.in

Abstract

In this paper, the design of a rectangular microstrip patch antenna is presented. The antenna proposed in this paper operates at a frequency of 2.4GHz (s-band) which covers WLAN and ISM (industrial, scientific and medical) band applications. It occupies a small size of 33×33×1.6 mm³. This antenna's design uses the microstrip feeding method and radiates at the 2.4GHz frequency. It has square slots in the patch and a defective ground structure (DGS) on a Flame Retardant-4 substrate with a dielectric constant of 4.4(r). Antenna metrics including return loss and voltage standing wave ratio have improved, according to simulation findings from the ANSYS High Frequency Structure Simulator (HFSS).

Index Terms

ISM, Microstrip patch antenna, return loss, WLAN.

IFERP International Conference
IFERP Explore
<https://iceri.in/> | info@iceri.in

UPCOMING CONFERENCES



Technoarete[®] Group

Integrating Researchers to Incubate Innovation

SUPPORTED BY



ISBN : 978-93-92105-03-6