



**3rd International Conference on
Advances in Science, Engineering
& Management
(ICASEM-2022)**

**18th - 19th November 2022
Hyderabad, Telangana, India**

Organized By

**Lords Institute of Engineering and Technology(Autonomous), Hyderabad,
Telangana, India**

In Association with

Institute For Engineering Research and Publication (IFERP)

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IFERP-Explore

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The 3rd International Conference on Advances in Science, Engineering & Management (ICASEM- 2022) is being organized by Lords Institute of Engineering and Technology (Autonomous), Hyderabad, Telangana, India in Association with IFERP-Institute For Engineering Research and Publication on the 18th - 19th November 2022.

The “3rd International Conference on Advances in Science, Engineering & Management ” 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 “Science, Engineering & Management ” which were given International values by Institute For Engineering Research and Publication (IFERP).

The International Conference attracted over 300 submissions. Through rigorous peer reviews 125+ 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.

ICASEM-2022

MESSAGE FROM CHAIRMAN



Janab CA Basha Mohiuddin

The founder and chairman

The Chairman, Mr. Basha Mohiuddin is a Chartered Accountant and a Law graduate by educational qualification. He has a well-established Chartered Accountancy firm that has been successfully serving its clients for over thirty-five years in the city of Hyderabad. Apart from the Education and Finance sectors, he also has interests in Construction, Consulting and Trading sectors. He is the Director of a number of Private and Public limited Companies. He is a Trustee and Honorary Member of a number of Charitable and Religious trusts, Chairman of BMR Projects Limited & Coherent Infrastructure Solutions Pvt Ltd, Managing Director of Elite Estate Pvt Ltd & TMR Consultancy Pvt Ltd

Lords is leveraging its expertise and capability to nurture the Institute as one of the best in the region. The whole idea is to facilitate learning through initiating, exploring and experimenting in a conducive environment. Lords was founded with a mission to promote excellence in the field of technical education and to provide quality training. Our campus is a rare blend of serene environment, well equipped infrastructure and a faculty enriched with technical knowledge. We Strive to give professional education a new perspective and Achieve perfection in all spheres. This gratifying ambience will nurture our students to be passionate about learning and to explore new realms of wisdom.

My solemn hope and earnest wish is that our diligent students bring honour and glory to our Institution and be worthy citizens of our country. Let your days at LORDS be highly rewarding!

MESSAGE FROM SECRETARY



Mrs. Rizwana Begum

Secretary

Mrs. Rizwana Begum, Secretary – Lords Institute of Engineering & Technology Known for her philanthropic activities, the Secretary is actively involved in the Management of all the Educational Institutions run by the group. She hails from a family known for their business skills and brings to the table this rich experience. She is also a Director of Elite Estates Pvt Ltd, TMR Consultancy Pvt Ltd, BMR Projects Ltd that have interests in Construction Sector. In her own word, We, at Lords, focus on providing great academic ambience and learning environment for its students and faculty. Lords believes in creating and disseminating knowledge & skill in core areas through innovative Educational programs and developing a new cadre of Global professionals. Various programs such as Orientation Day, Parents Meeting, Cultural Activities, Sports Activities, Technical Events, Faculty Development Programs, Intercollege competitions, Guest lectures, Model Exhibitions etc. are conducted round the year to groom our students.

MESSAGE FROM VICE-CHAIRMAN



Sri. Syed Touseef Ahmed

Vice-Chairman

An alumnus of the prestigious BITS Pilani and an MBA from Indian School of Business Hyderabad, this young technocrat brings the much-needed fresh ideas and progressive thinking to Education at Lords. He insists on quality education and oversees the implementation of best teaching and learning practices in the college. He believes quality is the epitome around which the Institution revolves. He strives towards empowering students to take charge and execute things on their own, thereby enabling them to learn important life skills. He focuses on grooming students to be technocrats with humility, exemplary dignity and modern outlook. He strives towards taking Lords to its Zenith by constantly upgrading and bench-marking the Institution as per Global standards.

We are strongly committed to propel every student of our Institution to solve real world challenges. We aim to groom professionals to effectively manage unanticipated challenges and motivate them to excel. The Institute facilitates students with not only good campus and state of the art infrastructure facilities but also aims to groom their competencies that will make them leaders and trendsetters in their respective fields. We believe in exposing our students to all possible avenues of honing their skill sets be it Entrepreneurship, Research, Academics, Placements, Social and Professional Clubs, Higher Studies etc.

I invite you to experience our unparalleled offering to create the leaders and innovators of tomorrow.

MESSAGE

FROM JOINT-SECRETARY



Sri. Syed Tanvir Ahmed

Joint-Secretary

Mr. Syed Tanvir Ahmed, the joint secretary is a chartered accountant by qualification. In his words, the pace of technological advancement in our day is more than we could have ever anticipated. The fact that LORDS Institute of Engineering and Technology (Autonomous) has consistently advanced in engineering education year after year is a source of great pride. Our mission is to provide high-quality education that will help students develop holistically on both a scientific and technological level, paving the way for a successful profession. Our students consistently achieve the university rankings, which is a testament to the extraordinary efforts made by our faculty to educate and develop the next generation leaders. Our Institute promotes the culture of entrepreneurship and startups among faculty and students. Student level entrepreneurial activities on campus have assumed greater significance with active stakeholder participation. The infrastructure, academic atmosphere, professional teaching skills, and learning process will all be preserved with your active participation, and this Institute will continue to advance in the years to come, I assure all the students and well-wishers on behalf of the entire management.



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 **Lords Institute of Engineering and Technology(Autonomous), Hyderabad, Telangana, India**. I am delighted to welcome all the delegates and participants around the globe to Silicon City College ,India In Association with for the **“3rd International Conference on Advances in Science, Engineering & Management”** Which will take place from **18th - 19th November 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 & LIET) 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



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MESSAGE FROM PRINCIPAL



Dr. C. V. Narasimhulu

Principal

Dr. C. V. Narasimhulu, a passionate teacher and an impeccable administrator, has a vast experience of over 27 years in teaching, research, and institutional development. He has published 52 papers in refereed international journals and conferences, 6 patents and authored a textbook. To his credit, he has produced 4 Ph.Ds of JNTUK. As a Principal of LORDS Institute of Engineering and Technology (LIET), he envisions the importance of engineering education wherein the students learn, apply and develop innovative solutions / products that solve the problems of society. He believes that LIET disseminates quality education that is affordable to the younger generation and nurture them by providing conceptual knowledge, employability skills along with human values, and positive attitude. The LIET has received many accolades over the past 19 years in academics, placements, and extra-curricular activities. This has become possible only due to continued patronage of the magnanimous management, state-of-the-art infrastructure, untiring efforts of its experienced, qualified faculty & staff members, and worthy contributions of its dedicated students and alumni. With a holistic perspective, he is determined to take LIET to the higher levels of excellence in engineering education. It is his strong belief that for any brand to sustain, it is essential to have “5Ps”- Placements, Publications, Projects, Patents, and Participative management, which are manifested in this institution. LIET welcomes the budding technocrats who are groomed as responsible citizens on whose shoulders lies the onus of building a bright future for our nation.

MESSAGE FROM DIRECTOR



Dr. S. Altaf Hussain

Director

Dr. S. Altaf Hussain did his B.Tech in Chemical Engineering from NIT Warangal (formerly REC, Warangal), and then pursued his M.Tech in Environmental Management from JNTU, Hyderabad, and then pursued his Ph.D in Chemical Engineering with a specialization in Cement / Powder Characterization from JNTUA Anantapur for which he did innumerable testing's / research on different powders including Active Pharmaceutical Ingredient (API), Cement, Food flour, coal dust etc., at Anjani Powder Research Centre in collaboration with IIT Delhi. He also did his Master of Human Resource Management as well as Diploma in Industrial Safety from Annamalai University. Currently he is serving as Director and Professor of Petroleum Engineering at Lords Institute of Engg. & Tech. Hyd.

Dr. S. Altaf Hussain, has extended more than 150 invited lectures to different organizations including Air Force Academy, NITW, JNTU, Sagar Cements, Chettinad Cements, Maha Cements, Aurobindo Pharma, Dr. Reddy's Labs, Hetero Drugs, Everest Organics etc., He is specialized in Powder Technology, Occupational Health, Human Resource Development, Industrial Safety, Unit Operations and Processes as well as de-bottle necking process parameters. He has two patents, written two books, one of which is on Academic Excellence in Engineering Education, and has published more than 35 research papers in National and International conferences / Journals.

Dr. S. Altaf Hussain strongly believes in every individual's high efficiency, subject to self-optimization, and optimal environmental parameters; Believing in this philosophy he has been counseling and mentoring students and industrial clients to accomplish greater heights. Most of his students / clients are at highest positions including CEO's, General Managers, Technocrats, Entrepreneurs etc., Dr. S. Altaf Hussain believes in Nature, Service with Selflessness, to all walks of life.

3rd International Conference on
Advances in Science, Engineering & Management

ICASEM-2022

Telangana, India | 18th & 19th November-2022



Keynote Speakers

Organized by

**Lords Institute of Engineering and Technology(Autonomous), Hyderabad,
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WELCOME MESSAGE



Pranav Bansode

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www.aidewiser.co.in

<https://www.linkedin.com/in/pranavbansode/>

Greetings from AideWiser!

We are thrilled to welcome today the elegant dignitaries, session chairs, keynote speakers, paper presenters, delegates from corporates and academia to the **3rd International Conference on Advances in Science, Engineering & Management (ICASEM-2022)** being held on **18th & 19th November 2022** in **Hyderabad, India**.

We thank the organisers for giving us an opportunity to be part of this distinguished gathering and wish for a grand success of the event.

WELCOME MESSAGE



Dr. Tarik Ahmed Rashid

Professor

Computer Science and Engineering Department,
University of Kurdistan Hewler, KRG Iraq.

I am enormously delighted to participate in “**3rd International Conference on Science, Engineering and Management (ICASEM-2022)**” Hybrid Conference, which is organized by **Lords Institute of Engineering and Technology (Autonomous)**, 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.

WELCOME MESSAGE



Dr. S. Balakrishnan

Professor and Head,
Department of Computer Science and Business
Systems,
Sri Krishna College of Engineering and Technology,
Coimbatore, Tamilnadu, India.

Dear Colleagues,

Warm Greetings from Sri Krishna College of Engineering and Technology, Coimbatore, Tamilnadu, India

As a Keynote Speaker, it is my great honour and pleasure to invite all to participate in the **3rd International Conference on Science, Engineering and Management (ICASEM-2022)** which is scheduled to take place on the **18th and 19th of November, 2022** in **Hyderabad, Telangana, India**, organized by Lords Institute of Engineering and Technology (Autonomous) in association with Institute for Engineering Research and Publication (IFERP).

The purpose of this conference is to provide a stage for researchers and practitioners from academia and industry to deal with state-of-the-art advancement in their respective fields.

I welcome all the keynote speakers, eminent dignitaries, session chairs, presenters and delegates to this conference.

At this juncture, I add my best wishes to organizers for a successful and fruitful conference.

I 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.

I am pretty sure that this conference will be interesting and fruitful. And also I hope that you will very much enjoy it and benefit!

WELCOME MESSAGE



Dr. Syed M. Ahmed

Head and Principal Scientific Officer
Central Instruments Laboratory,
University of Hyderabad, ex-NASA/ISRO Scientist,
Hyderabad, Telangana, India

Good Day..!

Warm Greetings from University of Hyderabad , India

As India is finding itself on the junction of huge industrial growth and explosion of new ideas turning into start-up revolution, this meeting finds its significance in bringing out the role of academic institutions.

With great pleasure I welcome all the eminent dignitaries, keynote speakers, session chairs, presenters and delegates to the **3rd International Conference on Advances in Science, Engineering & Management (ICASEM-2022) on 18th - 19th November 2022 in Lords Institute of Engineering and Technology(Autonomous), Hyderabad, Telangana, 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.

3rd International Conference on
Advances in Science, Engineering & Management

ICASEM-2022

Telangana, India | 18th & 19th November-2022



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Table of Contents

1•A Study on Identification of Factors Affecting Safety at Construction Site	
¹ Syed Minhaj Uddin Ahmed, ² Syed Mustafa Ali Khatib	1
2•A Study On Identification Factors Affecting Delays in Construction Projects	
¹ Mohd Abdul Razzak, ² Mizba Anjum	2
3•A Study of Normality Distribution of Quality of Work-Life & Work Life Balance of Employees in Foundry Units in Kolhapur District, Maharashtra	
¹ Dr. Swati M. Patil, ² Dr. Satish R. Pavaskar, ³ Dr. Dattatraya S. Jadhav	3
4•Physical Rehabilitation Exercise Assessment Using Deep Learning Framework	
¹ Mehar Latif, ² Arun Khosla	4
5•Impact of Skilled and Unskilled Labours in a Construction Project	
Mohd Majid Qayyum.....	5
6•Impedance source Inverter for Water Pumping Application	
Shantanu S. Mundhe	6
7•Solution of One-Dimensional Heat Equation by Finite Difference Method	
¹ Aditya Bijoy Das, ² Dr. Bhagat Singh.....	7
8•Ultra-High Performance Concrete -Role of Admixture	
¹ V. Chennakeswari Narmada, ² Mohd Saifullah, ³ Mohammed Abdul Bari, ⁴ Md Sufiyan	8
9•AAC and other Blocks in Masonry Construction	
¹ V. Chennakeswari Narmada, ² Prof. Dr. B. Ramana naik, ³ D.Rama.....	9
10•Impact of New Education Policy on Higher Education System – A Study on Teacher Perception on Higher Education System	
¹ Sheela Singh Thakur , ² Prof Pranav Misra	10
11•Secure and Energy Aware Routing Protocol using Heed Clustering approach in Wireless Sensor Networks	
¹ Mohammed Abdul Azeem, ² Khaleel-ur-Rahman khan.....	11
12•Blast Loading Prediction and Impact on Stiffened Door Structure	
¹ Dr V L S Banu, ² Dr E V Raghava R, ³ Dr Shiva Shankar Reddy	12
13•A Study on Risk Management in Construction Industry	
¹ Asma Tabassum, ² Mohammed Tayyab	13
14•A Study on Six Sigma in Construction Projects by Using SPSS	
¹ Dr.Asra Fatima, ² N.Sugandha Rathan, ³ Syed Shakeel Ahmed	14
15•Optimal Signal Design at Intersection under Mixed Traffic Condition	
¹ Syed Shimroze, ² K. Akhila, ³ G Mounika	15
16•Experimental Study of Concrete Cubes by Partial Replacement of Cement with Metakaolin	
¹ G. Srikanth, ² Md Mustafeezul Haque, ³ R G Nouman Khan.....	16
17•Analysis and Design of Spine & Wing type Bridge by using MIDAS software	
¹ Mohammed Aslam, ² Abdur Rahman, ³ G.Srikanth	17
18•Analysis and Design of High-Rise Building by Using Sap2000	
¹ Mohammad Adnan Ahmed Subhani, ² Banothu Jagadeesh, ³ Mohammed Sami, ⁴ Manauar Ali, ⁵ Mohammed Sohail, ⁶ Mohammed Moiz.....	18

19•Comparative Analysis between Convex, Concave and Flat pitched Saw Tooth Roofs	
¹ Tamkinath Uroosa, ² Sania Afreen, ³ Ruqhiya Sultana, ⁴ Dr. A. Rajarajeswari	19
20•Compressive strength of concrete replacing copper slag as fine aggregate	
Dr.A.Rajarajeswari.....	20
21•A New Approach to Generate Trees of Primitive Solutions of Diophantine Equation $x^2 + dy^2 - z^2 = 0$, where d is a positive square free integer, with Using a General Interval Decomposition	
Dr. K. Sridevi	21
22•Improved Fractal Image Compression Using Squirrel Search Method	
¹ Ghousia Anjum Shaik, ² T. Bhaskara Reddy, ³ Mohammed Ismail.B	22
23•Clinical Medical Records Analysis using Big data Frameworks and Deep Learning	
¹ K. Kalpana, ² Dr. G.Sunil Vijaya Kumar, ³ Dr. K. Madhavi	23
24•Performance Evaluation of Administrative Parameters of Real Estate (Regulation and Development) Act, 2016 in India by using Data Envelopment Analysis Model	
¹ Rakeshkumar K. Tiwari, ² Krupesh A. Chauhan	24
25•To Solve Fuzzy Assignment Problem Using Bipartite Graph with Optimal Solution	
¹ SharmilaBanu S, ² Prasanna A	25
26•Multi Disciplinary Aspect of Graph Theory	
¹ Dr.V Naganjaneyulu, ² Shaik Mohammed Ali, ³ Mohammed Nissar, ⁴ Dr Srinivas Remidi.....	26
27•A Review of the Internet of Things	
¹ Sharmila Sheoran, ² Shikha Maheshwari.....	27
28•Hybrid Model for Face Recognition Using Optimized Linear Collaborative Discriminant Regression Classification method.	
¹ T. S Akheel, ² Dr V. Usha Shree, ³ Dr. S. Aruna Mastani.....	28
29•Multiple Encryption Method Using Laplace Transformations and Trees	
¹ Triveni Domada, ² S Ashok Kumar, ³ Gudela Ashok, ⁴ D Chaya Kumari	29
30•A Novel Deep-Learning Model for Automatic Detection and Classification of Lung Cancer Using the Transfer-Learning Technique	
¹ Sanabam Bineswor Singh, ² Khumanthem Manglem Singh, ³ Kshetrimayum Merina Devi	30
31•Finite Element Modeling and Simulation of Condition Monitoring on Sandwich Beam	
¹ Mohammed Asif Kattimani, ² Prashanth K, ³ Sheshikanth S Mohrir	31
32•Home Automation Using HC-05 Module	
¹ Md.Imaduddin, ² Touseef Sumer, ³ CV Ravi kumar	32
33•Linear and weakly nonlinear magnetoconvection in a porous medium	
Dr.Shakira Sultana	33
34•Sephider NFT Marketplace D-App : How to Mint And List Non Fungible Tokens on the Internet Computer Blockchain	
¹ Mohammad Azmathullah, ² Mohammed Abdul Nayeem, ³ Dr.Abdul Rasool MD	34

35•Behavior and Performance Analysis of Reinforced Concrete Beam Column Joint Using Different Fibers	
¹ R. Chitra, ² Dr.R.Venkatakrishnaiah, ³ Dr.K.Vijaya Bhaskar Raju	35
36•Study on the Mechanical Properties of Concrete by Using Sea Sand	
¹ Ashwini B T, ² Vijaya Sarathy Rathanasalam, ³ MD. Shahaan, ⁴ Vasanthi P Rathod, ⁵ Sanjana M.....	36
37•Time Series Analysis and its Forecasting methods	
¹ Shreya Yadav, ² Kuldip Katiyar	37
38•Knowledge sharing in agile software Development: Strategies, practices, and challenges	
¹ Mitali Chugh, ² Neeraj Chugh	38
39•Understanding Technical Debt in Software Development: A global Multi-case Analysis	
¹ Mitali Chugh, ² Neeraj Chugh	39
40•A Comparative Study of Pounding Effect on Multi-Storied Building with and Without Shear Wall	
P.Anuradha	40
41•Assistance for Baby Management	
¹ Keerthana Hemanth, ² Megha Sathish, ³ Sinchana B S, ⁴ Sowmyalakshmi K S, ⁵ Dr. Vani A.....	41
42•Review of Various Brain Tumor Detection Techniques	
¹ Mandeep Mehan, ² Dr. Neelofar Sohi.....	42
43•Green Synthesis of Mn₃O₄ Nanoparticles for Supercapacitor Applications	
¹ Rehana Anjum, ² Sameer Ahmed, ³ Radhika, ⁴ Arshiya Anjum.....	43
44•Electrochemical properties of Co₃O₄ nanoparticles in 1M KOH aqueous electrolyte	
¹ Anjum Afrooze, ² Anjum Bejum, ³ D. Sharon, ⁴ Pushpalatha	44
45•An Efficient Design of Deep Learning Model for Online Telugu Character Recognition	
¹ Josyula Siva Phaniram, ² Dr. M. Babu Reddy	45
46•“Mind your language: An analysis of ‘text lingo’ as the ‘newspeak’ that limits creativity and imagination”	
Dr. Mary Binu T.D.	46
47•Detection of Parkinson’s disease by Comparing Numerous Machine Learning Models and Xgboost Based on Vocal Features	
P Durga.....	47
48•Improvement Of Untreated Tuff with Green Cement “Geopolymer Cement” For Use In Roads Construction	
¹ Khadhra ALLALI, ² Nabil BELLA, ³ Oussama KOUDJETELFEHM, ⁴ Yassine RAHIMI	48
49•Experimental investigation on mechanical properties of air-cured activated concrete for rural pavements	
¹ Malla Chandra Sekhar, ² Mukunda Rao Dangeti.....	49
50•SAAS Security with Google App Engine Service	
¹ Shakkeera L, ² Sharmasth Vali Y, ³ Ayman Banu K, ⁴ Riya A, ⁵ Priyanshu Singh, ⁶ Guruprasad K N	50
51•Block Chain-Based Web Application Security in Decentralized Hybrid Cloud Environment	
¹ Shakkeera L, ² Sharmasth Vali Y, ³ Yeshwanth A, ⁴ Malavika S, ⁵ Nischay Anand, ⁶ Tanu Varma.....	51

52•Cyber Crime Detection Methodology & Tools: an Experimentation Research	
¹ Dr. B.B.Meshram, ² Dr. Manish Kumar Singh	52
53•Comparison of EMG Signal Classification Algorithms for the Control of an Upper Limb Prosthesis Prototype	
¹ Ramalakshmana Y, ² Dr.Shanmuga Raja P, ³ Dr.Rama RajuP.V, ⁴ Bhavani D, ⁵ Devi R	53
54•Third Party Funding Mechanism and Judicial Attitudes and Responses in International Commercial Arbitration	
Seemasmiti Pattjoshi	54
55•Analysis of Shear Lag Effect on Different Geometric Plans of Frame Tube Structure	
¹ Mohammed Habeeb Ur Rahman, ² Mohammed Khaja Fakhruddin, ³ Mohammed Asad Iqbal	55
56•Dynamic Analysis of Core Shear Wall Structures	
¹ MD Mansoor Ansari, ² Mujhaid Khan, ³ Mohammed Akberuddin	56
57•Ethical Issues of Using Facial Recognition Technology	
¹ T.Pramod Kumar, ² N.Parashuram, ³ Dr.K.VijayaLakshmi	57
58•Performance of Light Weight Bricks Fabricated Using Different Waste Materials	
¹ Jimmy Gupta, ² Anshul Garg	58
59• AIoT: Concept, Review, Applications and Challenges	
¹ Raabia kausar, ² Akhil Gupta	59
60•Different Hurdles and Consequences in the Fields of Engineering	
¹ Maheen Fatimah, ² Aiman Fatima, ³ Mirza Taha ali khan, ⁴ Fatima Khadar	60
61•Analysis of Crashworthiness of a Crash Box under Axial Loading for Automotive Application	
¹ Jeevan Kumar M R, ² Dr. G V Naveen Prakash, ³ Dr. Ravi K S, ⁴ Dr. Nithyananda B S	61
62•Chromium containing Basic Chrome Sulphate (BCS) leachates induced changes in growth, yield, photosynthetic pigments and water relation of wheat plant	
¹ Richa Singh, ² Vinod Kumar, ³ Pramod Kumar Singh.....	62
63•A Qualitative analysis on Application based different routings in wireless sensor network	
¹ Arpana Mishra, ² Sandhya Bhardwaj, ³ Shilpa Choudhary, ⁴ Rashmi Priyadarshini, ⁵ R.M.Mehra	63
64•Advertisements and its Effect on Children	
¹ Aadhishwar Arora, ² Dr. Mohmad Mushtaq Khan.....	64
65•Future of Robotics in Healthcare	
Dr. Anjum Qureshi	65
66•Are the Customers aware and accepted towards Green Banking Practices?	
¹ Sarath Chandran M. C., ² Dr. Sathiyabama B., ³ Dr. Renju Chandran.....	66
67•Magnetized Bianchi Type-VIII String Cosmological Model In General Relativity	
¹ Dhirendra Chhajed, ² Ankita Choudhary, ³ Atul Tyagi3	67
68•Hybrid Project Management methodology: A new way of success to deliver projects efficiently	
¹ Anuj Kumar Shrivastava, ² Nainesh Anil Lad, ³ Abhishek Anil Maske	68

69•Effect of Hybrid Fibre on Mechanical Properties and Durability Characteristics of Ternary Blended Concrete	
¹ Mohd Ameer Ullah Khan, ² Mohammed Moiz, ³ Ismail Mohammed	69
70•Design of Dual Axis Solar Tracking System using Aurdino	
¹ Banoth Srinivas, ² Yellaiah Ponnamp, ³ Shaik Ithihas	70
71•A Multipurpose solar operated Pump Dispenser	
¹ R Venkata Krishna, ² Md. Aleemoddin, ³ Abdul Kareem	71
72•Indigo as Medicine in Ancient Times in India	
¹ Dr. Vivek singh, ² Seemasmiti Pattjoshi	72
73•Robust Vehicle Detection of Imbalanced Data in High- Resolution Aerial Images	
¹ Dr. U Sivaji, ² D. Aasritha, ³ Mohammed Sohail, ⁴ Kondal Rao	73
74•Resilient Sustainable Housing in Madhya Pradesh for Urban Poor: Challenges & Opportunities	
¹ Vivek Garg, ² Ar. Mitali Madhusmita, ³ Dr. Bimal Chandra Roy	74
75•Transformative change of urban core resilience towards urban health and environmental sustainability	
¹ Ar. Mitali Madhusmita, ² Vivek Garg, ³ Dr. Bimal Chandra Roy	75
76•A Study of Atma Nirbhar Bharat Abhiyan Schemes Prominence: An Emerging Industry for Sustainable Economic Development	
Anup Sagar Dash, Ar. Mitali Madhusmita, Dr. Suvendu Ku Pratihari	76
77•An Improved Bison Algorithm based Cyber Crime Data Analysis using Machine Learning	
¹ Swati Sharma, ² Varsha Sharma	77
78•Water Treatment Using Floating Wetlands	
¹ Indu Rajan, ² Nayana Krishnan, ³ Anoop B Vijay	78
79•Urban Development, Economic Advancement, and Importance of Resilient Growth in India	
¹ Anurita Bhatnagar, ² Dr. Deepak Bajaj, ³ Dr. Amit Kumar	79
80•A Trading Logistics Model from a change of Customer Behavior in a New Normal Era	
¹ Thanarak Prasertwit, ² Kanchana Kanchanasuntorn, ³ Varin Vongmanee	80
81•Seismic Evaluation of Multistoried frame System By Nonlinear Time History And Pushover Analysis	
¹ Md Jaweed Jilani Khan, ² Dr B.S.R.K. Prasad	81
82•“I Wouldn’t Have Made It Without Google Translate”: The Use and Abuse of AI-enabled Machine Translation in the EFL Classroom	
Wael Alharbi	82
83•Pam: Privileged Access Management	
¹ Sana Hafeez, ² Dr. S. Prabavathy	83
84•Effect of Hybrid Fibre on Mechanical Properties and Durability Characteristics of Ternary Blended Concrete	
¹ Mohd Ameer Ullah Khan , ² Mohammed Moiz, ³ Ismail Mohammed	84
85•A Study on Six Sigma in Construction Projects by Using SPSS	
¹ Dr.Asra Fatima, ² N.Sugandha Rathan, ³ Syed Shakeel Ahmed.....	85

86•AUTOML IoT – Predicting the Attacks in Digital Industry 4.0	
Sumaiya Shaikh	86
87•An Astute way of analysing and predicting the amalgamation of Machine Learning with Crop Cultivation	
¹ Shaista Farhat, ² Ashwini Gulhane, ³ Ashlesha Kolarkar, ⁴ Sumaiya Shaikh	87
88•Cross Site Scripting (XSS) Detection in Cyber World using Machine Learning Algorithms	
¹ Asma, ² Shaik Imam Saheb, ³ Intesar Fatima, ⁴ Pathan MZ Saida Khanam	88
89•Design & Performance of a PV/Thermal Solar Still	
¹ Ch. Santhan Kumar, ² P. Amuthini, ³ S. Mallikarjun, ⁴ Md. Nagma Arshin.....	89
90•Technology -Enhanced Language Learning	
¹ Siddiqui Tahseen Fatima, ² Reshma Bushra Ghouri, ³ Sultana Begum, ⁴ Syeda Amathul Azeem	90
91•Strategies and Tools for Communicative Competence	
¹ Wasim Ahmad Sheergojri, ² Humera Nafees, ³ Siddiqui Tahseen Fatima, ⁴ Afshan Jabeen.....	91
92•MHD Flow through Porous Medium past an Exponentially Accelerated Inclined Plate with Variable Temperature and Chemical Reaction Effects	
¹ Dr.Dindigala Raju, ² Masarath Jabeen, ³ Shazia Tahseen	92
93•Expressions and Perform Hate Speech Detection	
¹ Dr. Abdul Rasool MD, ² Abdul Rais Abdul Waheed, ³ Yash Thakur Chandel, ⁴ Javairia Begum	93
94•Optimization, Clustering and SVM Analysis on Blood Cancer Cells – A Machine Learning Model of Neural Networks	
¹ Dr.Kamel Alikhan Siddiqui, ² Ms.Sumaya Begum, ³ Khutaija.....	94
95•The Dataset’s Regular Items’ Detection Using Unstructured Data Classification	
¹ Dr. K Nagi Reddy, ² Kaneez Fatima, ³ Molugu Shilpa	95
96•Novel Technique to Design and Perform Transient Analysis on Fractional Delay Filters using MATLAB	
Dr.Kamel Alikhan Siddiqui.....	96
97•Graph Mining Technique for Malware Detection in Cyber Security	
¹ M. Neelima, ² Mohammed Mateen Ahmmmed, ³ B Nagalakshmi	97
98•A New Approach to Diagnose and Predict Covid-19 Severity Using Deep Learning Algorithms	
¹ Syed Juber, ² Saleha Butool, ³ Hajira Sabuhi	98
99•Authentication Technique for Privacy Preserving using Data Mining Approach for Providing Security and Integrity on Stored Data	
¹ Suraj Prakash Yadav, ² Bidyutlata Sahoo, ³ Amer Noor Khan, ⁴ Nuthi Naresh.....	99
100•Stego Image Identification Using Steganalysis Technique	
¹ Nadiya Jabeen, ² Gulnaz Fatima, ³ Faiza Anwar, ⁴ Sumaiya Shaikh	100
101•Intrusion Detection System Using Machine Learning (Python)	
¹ Tanwi Mahaboob, ² Kaukab Fatima, ³ Nabeela Afreen, ⁴ M.D Asma.....	101
102•Alternative Approach to Solve Goal Programming Problem	
¹ Dr. Monali G. Dhote, ² Dr. Manoj Singh	102
103•Electrochemical Properties of Porous Mn₃O₄ and Co₃O₄ Nanostructures	
¹ Mujeeb Hasan, ² MD Jahangir, ³ P Venkateswara Reddy, ⁴ Dadamiah PMD Shaik	103

104•Physical and optical properties of Mn₃O₄, Co₃O₄ and TiO₂ nanostructures: A comparative study	
¹ Dadamiah PMD Shaika, ² Bhanu Prasada, ³ Haji Dattua.....	104
105•Robust Vehicle Detection of Imbalanced Data in High- Resolution Aerial Images	
¹ Dr. U Sivaji, ² D. Aasritha, ³ Mohammed Sohail, ⁴ Kondal Rao	105
106•Maximizing Profits Through Stock Booking By Forecasting Stock Prices Using Deep Learning Techniques	
Dr. T. K. Shaik Shavali	106
107•Modelling of Subsurface Seepage over Sloping Aquifer in Ditch Drain System Without Vertical Recharge	
¹ Jyoti C Vanikar, ² Rajeev K Bansal	107
108•A Study of Atma Nirbhar Bharat Abhiyan Schemes Prominence: An Emerging Industry for Sustainable Economic Development	
¹ Anup Sagar Dash, ² Ar. Mitali Madhusmita, ³ Dr. Suvendu Ku Pratihari	108
109•Sign Language Recognition using Machine Learning	
¹ Prof. Mukund Kulkarni, ² Rutika Masane, ³ Sakshi Ozarde, ⁴ Harsh Pardeshi	109
110•Analysis of Model Order Reduction Techniques in Discrete Time Control System	
¹ Renu Yadav, ² Prof.A.N.Jha	110
111•Performance Analysis of LSTM and RNN for the prediction of Epilepsy using Intracranial EEG	
¹ Prathap H.M, ² Bhanuprakash. N	111
112•Techniques for Identification of Multiple Faults in DFIG Wind Turbines and Analysis for their Impact and Solutions	
¹ Vivek Kushwaha, ² Arvind Kumar Yadav, ³ Sanjay Kumar Maurya	112
113•Pam: Privileged Access Management	
¹ Sana Hafeez, ² Dr. S. Prabavathy	113
114•Review of Experimental Research on Ultrasonic Consolidation and Additive Manufacturing	
¹ Samir B.Shah, ² Komal G.Dave.....	114
115•Open-source software: Understanding considerations and challenges	
¹ Mitali Chugh, ² Neeraj Chugh	115
116•Possession Of Remote Data Protocol Check for Evaluating Cloud Storage Efficiency	
¹ Ramsha Farheen, ² Dr V Sesha Bhargavi.....	116
117•Multi Ethnic Study of Diabetes [MESD]-An Intelligent Predicting Model for Diverse Population	
¹ Suruchi Dive, ² Dr.Gopal Sakarkar	117
118•Expert Machine Learning Algorithms to Predict Start-up Unicorns	
¹ Dr. Suneel Pappala, ² Shaista Farhat	118
119•Robust Scalability, Efficient Energy Consumption model for Wireless Sensor Networks using Machine Learning Techniques	
¹ Shaik Imam Saheb, ² Sumaiya sheikh, ³ Syed Abdul Khaliq.....	119

120•A Machine Learning model to predict fraud detection Moksud Alam Mallik ¹ , Nurul Fariza Zulkurnain ² , Syed Mushtaq Ali ³ , Mustafiz Sharique ⁴ , Yerrolla Shakuntala ⁵	120
121•Method for Reducing Leakage Power in CMOS Very Large-Scale Integrated Circuits ¹ Narsaiah Domala, ² Geethanjali Manga, ³ Sapna Gangrade	121
122•A Novel System for AYUSH Healthcare Services using Classification and Regression ¹ Dr. Jyoti Kanjalkar, ² Pramod Kanjalkar, ³ Tanmay Deshmukh, ⁴ Jay Deshmukh, ⁵ Pratik Dhamal, ⁶ Apurva Bhalerao.....	122
123•Analyzing Cybercrime’s Underground Market Using Data Science ¹ Syed Ahmeduddin, ² Shaik Zubair, ³ Momin Mahaboob Ali.....	123
124• Energy availability of elite Indian adolescent boxers ¹ Hima Bindu Malla, ² Dr Priti Rishi Lal.....	124
125•Factors affecting User Acceptance of an Online Teacher Evaluation System using the Unified Theory of Acceptance and Use of Technology Jogie A. Vistal.....	125
126•AA New Approach to Generate Set of Prime Numbers with Using Non-Overlapping and Non-Empty Sets ¹ Dr. K. Sridevi.....	126
127• Simulation and Comparative Study of ORC System with R123 Refrigerant using Aspen Plus ¹ Ankit Kumar, ² Shailendra Kumar Shukla.....	127

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ABSTRACTS

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A Study on Identification of Factors Affecting Safety at Construction Site

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Abstract

The Construction Industry Contributes Significantly To The Gross Domestic Product (GDP) Of The Countries. Due To Dynamic Nature Of Constriction Industry Around 38 Fatal Accidents Occurring Daily In India. This Study Involved Four Part Questionnaire, Distributed Among The Engineers, Contractors And Workers, Interviews With Industry Experts Involved In Construction Site Activities. Part A Of Questionnaire Mentioned Management Factors, Part B Labour Factors, Part C Equipment And Material Factors, And Part D Technical Factors. The Construction Site Ranges From Residential Buildings, Commercial Buildings, Industrial Buildings, Institutional Buildings And Heavy Civil. Response Rate Was 61%. The Findings Reveal That The Main Factor Affecting Safety Performance Includes Poor Site Supervision, Absence Of Safety Officer, And Inadequate Personal Protective Equipment PPE. The Study Also Proposes That Management Play Important Role In Providing Required Safety Equipments.

Index Terms

Construction, Domestic Product, Questionnaire, Safety Officer.

A Study On Identification Factors Affecting Delays in Construction Projects

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Abstract

The Indian construction industry encounters an enormous amount of delays in residential projects, road projects, and steel structure construction projects. Delays affect both cost and time in the form of construction schedule and cost overruns respectively. Due to impressive and dynamic growth in the Indian construction sector, planned efforts are essential to limit these undesirable delays. On the account of the surge in the rate of residential buildings, roads, steel construction.

The task of identification and analysis of delays in residential building, road, and steel structure construction projects in India. A questionnaire survey is conducted to identify the causes of construction delays, and their effects and to minimize delays in construction projects using the decision tree method. A questionnaire is circulating among the various construction companies in India. Statistical package for social sciences (SPSS) software is applied to perform the analysis.

Construction has drawn concerning the analysed data eventually reflected finance-related issues, as well as labour-related problems as the dominating causes of delays. The research aims to identify the factors that cause delays in construction projects.

Index Terms

Residential project, road project, and steel structure project, Types of construction delays, Effects of delays, Decision tree

A Study of Normality Distribution of Quality of Work-Life & Work Life Balance of Employees in Foundry Units in Kolhapur District, Maharashtra

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Abstract

The economic, social, and cultural development of any country mostly depends on human resources it has. The 21st century most of the business houses understand that their distinctive competencies depend not in particular products or technologies but in distinctive expertise, skills and knowledge pool of their people. According to Arthur Lewis “there is big contrast in development between countries with approximately the same resources. Therefore, it is necessary to find difference in human behavior.” Though the countries are endowed with same level of natural resources like natural, international aid and technological etc. Countries development largely depends upon. The availability of effective human resources, as well as their dedication, is critical to a country’s growth. Human resources, not technical, economic, or social issues, cause the majority of difficulties in any business. When individuals labour to the best of their ability and with zeal, excitement and dedication to the company skyrocket. In actuality, every group has about the same resources to work with, such as supplies, equipment, cash, land, and buildings, among other things. The only thing that sets you apart from the competition is your attitude. Associations are nothing more than groups of individuals. They employ physical, financial, and human resources to achieve long-term goals. As a result, any organization necessitates remarkable efforts from its members. It has been observed that when there is a difficulty at work or in the home, the individual becomes psychologically disturbed, which can affect the individual’s professional as well as personal life. If there is a work–life balance issue, it might affect the quality of Foundry’s goods.

Keywords

quality of life, quality of work life, work life balance, organizational outcomes, achieve long term goals.

Physical Rehabilitation Exercise Assessment Using Deep Learning Framework

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Abstract

In physical therapy, rehabilitation activities can be quite beneficial. The effectiveness of rehabilitative exercise programmes can be evaluated using a variety of approaches. Various approaches do not take into account compensating movements, which can have a significant impact. When a performer uses muscles other than those targeted in a rehabilitation exercise, they are engaging in compensatory movement. Evaluating the quality of physical rehabilitation exercises are proposed in this study. It is possible to measure movement quality and utilize scoring methods to translate these statistics into an overall movement quality score so that the performer may determine how well he is practicing the recommended exercise. Method for evaluating the quality of physical rehabilitation exercises are proposed in this study. It is possible to measure movement quality and utilize scoring methods to translate these statistics into an overall movement quality score. Using supervised learning, deep neural network models are utilized to create quality scores for input motions. Using the UI-PRMD dataset, we were able to test our system's practicability. We were able to achieve an accuracy of 99.99 percent which was previously unreachable. The suggested system's capacity to detect compensatory motions allows for the implementation of a real-time rehabilitation exercise assessment.

Index Terms

Compensating movements, Deep learning, Rehabilitation exercises

Impact of Skilled and Unskilled Labours in a Construction Project

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Abstract

Construction labors play critical roles in executing the project. To achieve the objective of this study, a hypothetical model was developed and empirically examined. Data were gathered through a questionnaires survey method. In total, 40 construction practitioners responded to the questionnaire on behalf of their organization. The results revealed that unskilled labor has a significant negative impact on project performance during the construction phase, whereas the results confirmed that skilled labors have a significant positive impact on project performance in enhancing the success rate of the project in the public construction industry. These results could be used by construction experts to elaborate a broader and rooted view of the labor skills affecting the project performance. The results provide adequate information to policy and decision makers concerning labor skills being a compulsory part of the operational strategy in accelerating the better execution and success of construction projects. The current study adds to the construction project management literature by examining the effect of labor skills on project performance positively or negatively, and the hypothesized model was developed that should be adopted by practitioners to ascertain labor skills for the successful execution of the project.

Impedance source Inverter for Water Pumping Application

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Abstract

Impedance source inverter for driving Dynamic model of Induction Motor rated at 3HP for water pumping application is presented in this paper. ZSI can operate in the shoot through condition, unlike typical voltage and current source inverters. The usual PWM technique is changed to either increase or decrease the voltage level available at the inverter's input using the simple boost control mode. Additionally, this system only requires one stage of power conversion, negating the requirement for a second DC-DC converter. Using MATLAB Simulink, the system is validated for the intended parameters.

Index Terms

Z-Source Inverter, Induction Motor, Shoot Through, Simple Boost, PI Controller

Solution of One-Dimensional Heat Equation by Finite Difference Method

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Abstract

This following paper provides a practical overview of numerical solutions to the heat equation using the finite difference method. The one-dimensional heat equation is discretized using the Forward Difference method to the time variable and the Central Difference method to the space variable, where the numerical solution is reduced to a discrete approximation. The solution is then obtained by creating a mesh and solving for the various space variables w.r.t time using Bender Schmidt's Formula.

Keywords

Finite Difference Methods, Discrete Mesh, 1-D Heat Equation, Bender Schmidt's Formula

Ultra-High Performance Concrete -Role of Admixture

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Abstract

Ultra-high performance concrete (UHPC) is a modern composite material with extremely good mechanical characteristics. UHPC is generally defined as concrete with a compressive strength greater than 150 MPa. UHPC typically is made with high-strength steel fibers, fine sand, cement, fly ash, a large volume of SF, and a low amount of water (a w/cm ratio less than 0.20). Graybeal (2006) has found that the chloride permeability as measured by ASTM C 1202-12 was less than 100 coulombs, a very low permeability. Structural beams cracked in flexure showed chloride penetration into a 5- μ m-wide crack of only 5 mm. Such small cracking is typical of even highly stressed UHPC; therefore, its resistance to both chloride penetration and carbonation is high. While considerably more expensive than conventional concrete, UHPC is highly durable and provides excellent protection of embedded steel reinforcement.

AAC and other Blocks in Masonry Construction

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Abstract

The construction industry has been known as one of the largest consumers of non-renewable resources. It is high time we need to find the best alternative which must be economical as well as environmental friendly. Walling materials constitute approximately 30% of construction and the largest mass of a building. An experimental investigation has been carried out to study the compressive strength, unit weight, and water absorption etc. on AAC and other blocks in masonry construction to meet the conventional walling materials, clay brick.

Construction block technology offers a speedier, cost effective, environmentally sound alternative to conventional walling materials. It is based on the principle of densification of a lean concrete mix to make a regular shaped, uniform, high performance masonry unit. This technology can be easily adapted to suit special needs of users by modifying design parameters such as mix proportion, water/cement ratio and type of production system. It is an effective means of utilizing waste materials local resources; as well as it increases scope for decentralized local production.

Keywords

Non-renewable resources, compressive strength, unit weight, conventional walling materials.

Impact of New Education Policy on Higher Education System – A Study on Teacher Perception on Higher Education System

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Abstract

“Today technology of education is being developed with the aim not only of making education more widely available, but also improving the quality of education which is already available”. – Apater

Information technology and communication usually abbreviated as ITC, is often used as an extended synonym for information technology (IT), but is typically used in a more general sense to highlight the importance of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage and audio-visual systems, which allow users to create, access, store, transmit, and manipulate information.

ITC refers to any device that can electronically store, retrieve, alter, transmit, or receive data in a digital form. Personal computers, digital television, email, and robots are a few examples.

ITC is therefore concerned with the handling, transmission, and reception of digital data. It is significant because it is also interested in how these many uses might cooperate.

Secure and Energy Aware Routing Protocol using Heed Clustering approach in Wireless Sensor Networks

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Abstract

Energy efficiency and secure data transmission are the major issues in WSN. In order to achieve these issues, here we propose hierarchical methodology with multi-hop communication pattern, which includes three protocols they are LEACH-Low Energy Adaptive Clustering Hierarchy, TDP-Trust Distrust protocol and HEED-Hybrid Energy Efficient Distributed Clustering Approach.

Leach protocol is used to decrease the energy consumption by creating and maintaining the clusters in order to improve the network lifespan. In leach, maximum energy node is taken as CH. Whereas in TDP; there are three main steps to be followed in order to select a reliable path for secure routing. They are topology management, grading and path selection. In trust distrust approach, energy depends upon the carrier/medium. Here, in this methodology we propose the carrier frequencies where the carrier finds the user instructions by itself. Finally in HEED clustering approach, which periodically selects the cluster head according to a hybrid of the node residual energy and secondary parameter, is node proximity. In order to increase the energy efficiency and prolong network lifespan in HEED, intra cluster is used and it communicates with other cluster heads. Hence, HEED precodes the information transmitted through medium to suppress the iterations.

Keywords

Wireless Sensor Network, energy-aware routing, clustering, inter and intra cluster, routing protocol.

Blast Loading Prediction and Impact on Stiffened Door Structure

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Abstract

The external and interior structural frames of a commercial or military facility can be severely damaged by an unanticipated bomb detonation within or around the structure. In most cases, reinforced concrete walls can be used to reinforce these external constructions. However, in the case of a free pass, the entrances cannot be fully sealed off. As a result, a variety of blast resistant doors that can survive the impact of an explosion have been developed for varied uses. A blast-resistant door could be made of stiffened steel plate, reinforced concrete, or even a sandwich construction.

The goal of this research is to apply computational methods to investigate the level of damage caused by a blast load on a stiffened steel plate designed to sustain a blast load. Panels with various stiffeners are considered for numerical analysis in this paper. There are three sorts of stiffeners to consider: T, I, and HAT shaped stiffeners. The thickness of these stiffeners is changed to investigate the effect of blast load damage. The evaluation of mid-point displacements and strain energy receives special attention.

The cover plate is modeled using the finite element tool ABAQUS, with three different stiffeners with varied heights and thicknesses. The S4R type shell element is used to mesh the boundary conditions, which are believed to be fixed on all sides. The weight of TNT (explosive) used in the response calculations was adjusted from 100kgs to 500kgs in increments of 100kgs. In all situations of the strengthened steel plate of the door structure, the weight of TNT (explosive) was increased from 100kgs to 500kgs at a 100kg increment in all circumstances. The blast response of three different strengthened blast doors subjected to a constant blast load was investigated. The design and analysis of steel plate with three distinct stiffeners subjected to varying blast loads necessitates a thorough knowledge of blast phenomena as well as the dynamic response of various structural elements. The results of blast load analysis for stress, mid-point displacements for T, I, and HAT stiffeners were compared, and it was discovered that Hat stiffener outperforms T, I, and HAT stiffeners in this application. The current study's findings provide a thorough understanding of the consequences of explosions on blast door structures.

A Study on Risk Management in Construction Industry

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Abstract

Construction projects are defined as fragmented, unstable, and complicated, which consequently increases risk exposure. To manage risks adequately and effectively, decision-makers in the sector require reliable access to information and expertise. Therefore, successful construction project undertakings may be facilitated by the adoption of an effective risk management strategy with regard to managing related project risk information. This master's thesis's objective is to investigate and assess project risk management in the construction sector, with a focus on the perspective of project managers and contractors. The goal is to look at how risk management is understood and applied in practice in order to look at how project information is used during the process. The technique comprises a review of the literature about the concepts of risk management, diverse risk attitudes, and risk-related knowledge management. A mixed-method approach is used for data gathering and analysis, and conclusions are drawn in reference to basic concepts. The empirical data is gathered through an online survey and in-depth semi-structured interviews with prominent people in the construction industry. The study's findings indicate that risk management theory, methods, and processes are generally unknown in the industry. Individual organizations use analogous procedures, but there is no industry-wide exchange of definitions and concepts, and the methods are not as organized as those suggested by risk management theory. However, research suggests that accomplishing project objectives relies on how stakeholders perceive risk and risk management. Research demonstrates that contractors and developers underuse knowledge- and risk-management interactions.

Keyword

Risk management; project managers and contractors; Construction project; mixed-method approach

A Study on Six Sigma in Construction Projects by Using SPSS

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Abstract

The importance of quality improvement and excellent performance in the highly competitive world market, lead many organizations, their top managers, project managers, and engineers to implement the new philosophies such as pull scheduling and lean principle at their organizations. This paper describes the Six Sigma principle and framework as a quality improvement strategy by using SPSS software. In this paper we proposed the Six Sigma is a statistical methodology that provides a structured framework to organize and implement strategic process improvement initiatives to attain reductions in process variability or defects. The basic theory of six sigma, DMAIC (Define, Measure, Analyze, Improve & Control) methodology is been discussed in this paper. A study of six sigma in construction project was conducted with the help of questionnaire survey which provide data for the implementation of six sigma in construction project. RII is found for the factors influencing the six sigma implementation they are (Can critical defects be identified=0.808, Client/customer satisfaction=0.908, Can it reduce the waste=0.919, Is it useful for new project opportunities=0.940, Can it improve quality=0.768, can it be implemented without any obstacle=0.9157, Defects can be eliminated/reduced=0.9157, Can it be used for micro constructions project.=0.9263) And then that data is analyzed with the help of SPSS and One Way ANNOVA t-test is done which provide us the information of customer/clients satisfaction with the implementation of Six Sigma in construction project. The improvement is presented in terms of process sigma and standard deviation. The purpose of this study is to analyze Six Sigma within construction context and evaluate its features through Literature Review and questionnaire survey. This study aims at understanding the needs of construction industry from process improvement perspective and matches these needs with the expected outcomes of Six Sigma.

Key words

Six Sigma, Quantity, DMAIC, SPSS.

Optimal Signal Design at Intersection under Mixed Traffic Condition

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Abstract

The goal of this Dissertation work is to Design Optimum cycle time at the intersection Signal timing involves deciding how much green time the traffic lights shall provide at an intersection approach.

The first part of investigation was to study the area of Jubilee Hills of Hyderabad district of Telangana state. It includes traffic volume in the area in normal hours and in peak hours. In the taken location the traffic signal is operated manually hence there is necessity of optimal signal design at this intersection.

The second part of investigation was to collect the different vehicular volume counts in the peak hours under mixed traffic condition. Traffic volume studies are conducted to determine the number of vehicles, movements, and classifications of roadway vehicles at a given location. These data can help to identify critical flow time periods, determine the influence of large vehicles or pedestrians on vehicle traffic flow, or document traffic volume trends. The length of the sampling period depends in the type of count being taken and the intended use of the data recorded.

The third part of investigation is to study the various methods available for the optimal signal design and model required. For the design is to select the appropriate method and models.

The fourth part of investigation to choose the Webster method is a rational approach for signal design. The design is simple and is totally based on formulas laid down by Webster, in this method the design of traffic signal nowadays has become an important factor for major intersections of towns and cities. Traffic signal controls the movement of traffic and not only reduces accidents but enables the road safety users to effectively use the area of road at intersection

The final part of has confirmed obtained optimum cycle time is determined by using Webster method for the Intersection with minimum delay. This will help the traffic police to operate the automated fixed signal control system at the intersection.

The first and second part of investigation shown that the jubilee hills area facings traffic congestion problem in order to overcome the crisis. The third and fourth part of investigation the total cycle of the signal is determined which forms a total least delay occurring at signal.

Estimation of Capacity Can Be Performed at This Intersection. Gap Acceptance Method, which is described in Highway Capacity Manual 2000, can be used to do this. The most recent advancements in traffic signal automation help the traffic signal with GPS so that the signal system is given information on the current traffic volume by GPS connected to approaching vehicles. At the crossroads, GPS methods can be employed to obtain real-time traffic information. Thus, this greatly minimizes the amount of time that vehicles must wait at junctions by synchronizing the signals at two to three successive intersections.

Keywords

Intersection, signal, Webster.

Experimental Study of Concrete Cubes by Partial Replacement of Cement with Metakaolin

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Abstract

Concrete is widely used construction materials. However, the production of Portland cement releases significant amount of CO₂ (carbon dioxide), a greenhouse gas. One ton of Portland cement clinker production releases approximately one ton of CO₂ and other gases. Environmental issues are playing essential role in the sustainable development of concrete industry. Today many researches are ongoing for the replacement of Portland cement, using many waste materials like fly ash and GGBS. Like Fly ash and GGBS a metakaolin can also use as a binder with the partial replacement of cement which take some part of reaction at the time of hydration reaction. Cement replacement by metakaolin in the range 5% to 30% with an interval of 5% is to be study. It was tested for compressive strength at the age of 3,7,28 days and compared with the results of conventional concrete. The overall test results show that Metakaolin could be used in concrete as a partial replacement of cement.

Key Words

Concrete, Metakaolin, Compressive Strength, Geopolymer Concrete

Analysis and Design of Spine & Wing type Bridge by using MIDAS software

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Abstract

Elevated Highways are the current trend in road infrastructure, especially in thick populated cities where the construction of wide roads is difficult due to restriction in available roadway width and higher land cost. The use of single/multi-cell box girder bridges with a single pier system for two or three lanes has been quite common in elevated highways. But there are some limitations in this type of bridges such as restriction in overall deck width with the single pier system. In consideration of traffic growth, growing demand for more urban space and innovative transportation planning and development, a new type of construction called SPINE & WING type Bridge has been introduced with the use of pre-casting and segmental technology for fast-track solutions and to overcome the limitations of conventional bridges and as an optimal solution.

The main aim of this paper is to carry out the detailed analysis by using Finite Element Analysis with the help of Midas software and detailed design of precast segmental post-tensioned type of Spine and Wing Bridge as per codal provisions of Indian Road Congress (IRC) for different spans (30m, 35m, 40m) and comparison of the Structural Behavior and Response with the conventional precast segmental post tensioned box Girder Bridge. The necessity, advantages and disadvantages of the Spine and Wing type Bridge over conventional Box Girder Bridge will also be discussed in detail.

Analysis and Design of High-Rise Building by Using Sap2000

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Abstract

SAP2000 is a design software which is used to design the residential buildings, commercial buildings, steel structures, concrete bridges, steel towers etc. In this research work an analysis and design have been carried out for ground floor plus 21 typical floors. This design consists of total plot area 896 square meter, built up area 587 square meter. This research work involves dead load, live load, Wind load analysis and seismic analysis using IS-875 part1, part2, part3, and IS-1893-2002. For designing reinforced concrete structures IS: 456-2000 code of practice has been used. In this research work the live load has taken 3KN/m² and self-weight of slab per square meter is considered as 3.75. The location for the multistoried building is assumed as Hyderabad with basic wind speed 44m/s. the grade of concrete assumed is M30 and steel grade is fe 500 (HYSD bars). After designing the structure, the maximum thickness of slab is obtained as 150mm, and the maximum cross-sectional dimension for rectangular beam is obtained as 400mm X500mm also the maximum dimensions for columns is obtained as 0.42m X 0.8m. For this research work raft or mat foundation has been provided with 250 KN/M² SBC of soil. The diameter of steel for two-way slab is provided as 12mm. there are 33 slab panels as a two-way slab in each floor. The diameter of longitudinal reinforcement for columns has been provided as 25mm. the maximum and minimum diameter for beam reinforcement is 16mm and 12mm

Comparative Analysis between Convex, Concave and Flat pitched Saw Tooth Roofs

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Abstract

A saw-tooth roof is a type of the roof which consists a series of single sloped or monosloped slabs arranged in a linear order. As per structural point of view, the structure with saw tooth roof has the ability to oppose much amount of wind loads in an open terrain.

These are optimized such that the air could flow smoothly without any restrictions. Three models have been decided for a steel structure having three type of roof geometries namely- flat pitched, concave and convex sawtooth roofs. The flat pitched roof is simple planar roofing having single slope without any curves. Concave roof has curvature from inside and irrespective to this, convex one has curvature to its outside. The angle of flat pitched roof is maintained to 30° and similarly the angle made by the chord intersecting circle made by the arc drawn as center line (diameter) for concave and convex roofs is also maintained to be 30°. The loads have been defined as per IS: 875. The design is done as per IS 800: 2000 for steel structural elements. Analysis is done and the stresses and responses in shell members i.e., roof sheets have been compared between three structures and the roof having least vulnerability can be concluded as safest one in terms of resistance to wind loading.

The results showed that the structure with convex geometry has the safest response from three of the structures. The design data is most economical for this structural system. On other hand CCVSTR is the least safe structural system and FPSTR required the uneconomical sections for design purpose.

Compressive strength of concrete replacing copper slag as fine aggregate

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Abstract

Concrete is used as one of the world's wide material in the construction field. The use of concrete in infrastructure development and construction activities increases the lot of demand. Researchers are in search of replacing coarse aggregate to form the concrete with less expensive and to lead sustainable development. Concrete production demands its constituents like aggregates, cement, water and mixtures. Sources of conventional aggregates occupy the major part of the concrete. The large scale production of concrete in construction activities using conventional coarse aggregate such as granite reduces the natural stone deposits and affecting the environment hence causing ecology imbalance. This huge demand of natural aggregate raises a serious question about the preservation of natural aggregate sources for sustainable development. Extraction and processing of aggregates are also a major concern for the environment. Hence consumption of alternative waste material in lieu of natural aggregate in concrete production not only protects the environment, but also makes concrete a sustainable and environment friendly construction material. The high demand for concrete in the construction using normal weight aggregates such as gravel and granite drastically reduces the natural stone deposits, and this has damaged the environment thereby causing ecological imbalance. Therefore, there is a need to explore and to find out suitable replacement material to substitute the natural stone. In developed nations, the construction industries have identified many artificial and natural lightweight aggregates (LWA) that have replaced conventional aggregates thereby reducing the size of structural members. Some of the by-products like fly ash, silica fume and slag are being used into construction industry as a partial replacement to the fine aggregate. Similarly, copper slag is a by-product from copper industry which can be used as a sand replacement into concrete. An attempt has been made to replace fine aggregate by copper slag 0%, 10%, 20%, 30% and 40% respectively. The compressive strength of concrete has been determined for M40 grade concrete. The results show that for 40% replacement of copper slag leads to increase in compressive strength and was about 61.2 MPa at 28 days of curing.

A New Approach to Generate Trees of Primitive Solutions of Diophantine Equation $x^2 + dy^2 - z^2 = 0$, where d is a positive square free integer, with Using a General Interval Decomposition

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Abstract

This paper focused to study to generate Trees of Primitive Solutions with using a general interval decomposition of the Diophantine equation

$$x^2 + dy^2 - z^2 = 0 \dots\dots\dots[1]$$

where d is a positive square-free integer.

Keywords

Diophantine equation, Square-free integer, Primitive Solution, Seminal Matrices.

Improved Fractal Image Compression Using Squirrel Search Method

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Abstract

The complexity in search of suitable range domain and considerable loss in compression parameters like PSNR and MSE are the major constrictions of the baseline fractal image compression. Hence the existing research is focused on finding optimal solutions to pace up the search rate with marginal loss of image parameters on compression. Major existing fast search fractal algorithms attain the fractal search speed lowering the image quality. Addressing this, a Squirrel inspired fast search (SIFS) method is proposed for fractal image compression (FIC). Existing methods mainly depend on wavelet classification, the proposed SIFS uses methodical vector of range blocks based on the similarity and optimizing the search based on dynamic behavior of flying squirrels and their efficient way of gliding by the coordinate distance. The proposed SIFS method uses foraging behavior of flying squirrels to find the best range block search showing scalable improvements in search complexity to Particle Swarm Optimisation and Genetic Algorithm based methods. The noteworthy reduction in MSE (Mean Square Error) calculations is observed as only six of the eight dihedral transformations are enough to compare the range block similarity in the proposed SIFS.

Keywords

Squirrel Search, Fractal Image, Genetic Algorithm, Particle swarm & Compression Ratio

Clinical Medical Records Analysis using Big data Frameworks and Deep Learning

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Abstract

Online medical information of health care system is increasing each day generating massive amounts of electronic data. The analysis of medical records is a major challenge, as they are generally presented in plain text which is unstructured. Clinical medical records have a very specific technical vocabulary. Conventional database management systems can't handle and manage such massive volumes and unstructured text data. Analysis of electronic medical data provides potentially limitless possibilities for knowledge to be gained. The gained knowledge can be used to identify adverse drug reaction or making early judgments about the patient's symptoms and in overall improvement of the healthcare quality offered to patients. Deep learning models can effectively be used in the big data analysis of electronic medical health records. Deep Learning algorithms like convolutional neural networks(CNN) extract high-level, complex abstractions as data representations through a hierarchical learning process. In this study, we explore how Deep Learning can be utilized to address analysis of medical records text data and also in extracting the complex patterns to assist the health care system for the improvement of patient's health.

Performance Evaluation of Administrative Parameters of Real Estate (Regulation and Development) Act, 2016 in India by using Data Envelopment Analysis Model

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Abstract

The real estate sector is one of the most universally recognized sectors which contribute a lot in economic growth of any country. In India it is expected to grow and reach around USD 1 trillion by 2030. Immediately after implementation of the Real Estate (Regulation and Development) Act, 2016 [RERA] it was essential to find out the behavior and performance of various administrative parameters employed across different states of India. The study is related to the assessment of relevant administrative parameters engaged in the states of Maharashtra and Gujarat. Here the Data Envelopment Analysis model is used to carry out investigation on the performance of real estate regulations and accordingly developed a Charnes Cooper Rhodes (CCR) Model and a Banker Charnes Cooper (BCC) Model to evaluate the efficiency of administration. Our CCR model predicts the efficiency range of key indicators that shows differential results on variables considered in the study. Our BCC model shows significant comparison between efficiencies. The difference in the efficiency level allows us to think further on these findings and question the appropriateness of key parameters of this new reform as it is more impacting promoters and real estate agents during the initial stage.

To Solve Fuzzy Assignment Problem Using Bipartite Graph with Optimal Solution

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Abstract

The Essential application of the transportation problem investigated in the field of operations research is the assignment problem. Here, we describe a bipartite graph-based technique for solving the fuzzy optimal assignment problem. In order to develop the assignment matrix using the ranking method and fuzzy congruence modulo methodology, we define the problem using AP algorithm, which gives considerable advantages. To show the effectiveness of the suggested approach, an illustrative numerical example is given. The proposed strategy, which determines the most appropriate answer for all kinds of assignment problems with cost expressed as a generalized pentagonal fuzzy number, is easy to comprehend and apply.

Keywords

Fuzzy Set, Ranking of Pentagonal Fuzzy Number, Fuzzy Congruence Modulo Assignment Problem.

Multi Disciplinary Aspect of Graph Theory

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Abstract

The mathematics plays a vital role in different fields. Systems based on searching unknown things and solving problems play an important role in applications of artificial intelligence, especially educational applications; these programs support students and instructors in teaching and learning process efficiently. Graph theory is the mathematics tool that information technical students must study and apply in their respective fields. One of the significant areas in mathematics is graph theory which is widely utilised in structural models. These structural arrangements of various objects or technologies lead to new discoveries, inventions, innovations and modifications in the existing environment for enhancement and advancement in those fields. This paper covers the widespread multi-disciplinary aspect of graph theory and its major contributions in heterogeneous fields to some extent but mainly emphasize on the mathematical perspective and its applications that uses graph theory concepts. Various papers based on graph theory have been studied related to scheduling concepts, mathematical science applications and its wide contribution has been presented here.

A Review of the Internet of Things

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Abstract

Internet, a progressive development, is continuously changing into a few new sorts of equipment and programming making it unavoidable for anybody. The innovation named Internet of Things expands the capacity of humanity and PCs to control billions of available substances like actuators, sensors, and different administrations. The fate of the Internet will comprise different associated gadgets that will additionally expand the lines of the world with actual elements and virtual parts [1]. This profoundly connected worldwide organizational building known as the IoT(Internet of Things) will enhance everybody's day-to-day life, increment business efficiency, and further develop government proficiency. Be that as it may, this new reality based on the Internet contains new sorts of difficulties from a security and protection viewpoint [2]. The primary goal of this paper is to give an outline of the IoT, models, fundamental developments, and their purposes in our normal daily practice. Likewise, it portrays a six-layered design of IoT and brings up the connected key difficulties.

Hybrid Model for Face Recognition Using Optimized Linear Collaborative Discriminant Regression Classification method.

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Abstract

Humans can easily solve the difficulty of facial recognition; nevertheless, the fundamental issue is limited memory. The field of automatic facial recognition has advanced quickly, yet it still confronts challenges like “Ageing, Partial Occlusion, and Facial Expressions,” etc. Considering this, the three main stages of pre-processing, feature extraction, and classification are used in this paper to design a novel face recognition framework. The contrast enhancement and RGB to Grey Level Conversion are first carried out in the pre-processing stage. The pre-processed facial image is used to extract the features in the form of shape and texture using AAM. The categorization is then carried out using an improved LCDRC model. The projection matrix is the most important evaluation in the LCDRC. Therefore, it is necessary to optimize the projection matrix to improve recognition precision. The notion of WOA and LA are combined to create the revolutionary hybrid algorithm known as the Combined Whale Lion Model (CWLM), which is used to improve the projection matrix. Recognition rate, False Positive Rate (FPR), and False Discovery Rate (FDR) comparisons with other compared approaches such as LCDRC-WOA, LCDRC-CEWO, and just LCDRC are used to assess the overall performance of the proposed model.

Keywords

Face Recognition; AAM (Active Appearance Model) based feature extraction; Linear Collaborative Discriminant Regression Classification (LCDRC); Lion Algorithm; Whale optimization Algorithm (WOA); Cyclic Exploration Based Whale Optimization (CEWO).

Multiple Encryption Method Using Laplace Transformations and Trees

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Abstract

In this paper, we introduce a new technique of multiple encryption using Laplace transformations through Fibonacci numbers by exploiting the properties of trees in graph theory via Beaufort cipher to encrypt the plain text, which is more secure than the symmetric key cryptosystem as the plain text is encrypted in multi layers. In this method we can make the tree as public key and Beaufort cipher as private key through which we can communicate messages in secured channel. This idea can be extended to public key cryptosystem also.

A Novel Deep-Learning Model for Automatic Detection and Classification of Lung Cancer Using the Transfer-Learning Technique

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Abstract

Advances in computer and machine learning have opened up new possibilities in the field of Medical Science. The use of computer algorithms to assist specialists, particularly in early diagnosis scenarios, has received utmost attention in the current scenarios. This paper proposes a computer Aided System using a Convolutional Neural Network to detect malignant nodules in lung computed tomography images (CT) and classifies them into different types namely benign or malignant. A framework based on transfer learning is suggested and evaluated using well-known DL models namely VGG16 and InceptionV3 on the dataset the Iraq-Oncology Teaching Hospital/National Centre for Cancer Diseases (IQ-OTH/NCCD) lung cancer dataset that consists of CT scans of patients diagnosed with lung cancer in different stages, as well as healthy subjects. A total of 1190 images representing CT scan slices of 110 cases are available in the dataset which can be further increase by augmentation. The study also includes other transfer learning techniques for the detection and classification of lung cancer. The performance of the various techniques is being studied and analyses on various different parameters. The various techniques give favourable results and it can aid the Experts in detection of malignant lung tumour easily.

Keywords

lung cancer, CAD system, transfer learning, Vgg16, Inception V3, CT Scans

Finite Element Modeling and Simulation of Condition Monitoring on Sandwich Beam

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Abstract

Beams are commonly used structure element in engineering and transport for a number of static and dynamic loads. The focus in this paper is on an integrated smart structure method for condition monitoring application is modelled and simulated using ANSYS software; two different piezoelectric transducers are used over the structure for actuation and sensing, with the application of piezoelectric transducers makes debonding of piezoelectric sensors/actuators for application of load from 0 to 5000 Hz with an input of 1V for all material configurations in sandwich beam which results in significant variation of static and dynamic responses.

The values of natural frequencies obtained from ANSYS are compared with the experimental results. It has been seen that the enhancement in natural frequencies is a major parameter with the change of core thickness and material.

Keywords

Dynamic loads, ANSYS, piezoelectric transducer, sandwich beam.

Home Automation Using HC-05 Module

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Abstract

Home automation is “The Internet of Things”... The manner in which the majority of our gadgets and machines will be organized together to give us a consistent command over all parts of our home and the sky is the limit from there Home computerization has been around from numerous decades as far as lighting and straightforward apparatus control, and as of late has innovation made up for lost time for the possibility of the interconnected world, permitting full control of your home from anyplace, to turn into a reality With home mechanization, you manage how a gadget ought to respond, when it ought to respond, and why it ought to respond You set the calendar and the rest is robotized and dependent on your own inclinations along these lines giving comfort, control, cash reserve funds, and a by and large more astute home Home automation can likewise aware you of occasions that you should need to think about immediately while you are gone like water spills and surprising access to your home, or any piece of it Whenever, you can snatch your iPhone, Android gadget or other remote control and change the settings in your home as wanted

Linear and weakly nonlinear magnetoconvection in a porous medium

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Abstract

Magnetoconvection in an electrically conducting fluid in a sparsely packed porous medium is investigated using the Darcy-Lapwood-Brinkman model with the Boussinesq approximation. Linear stability analysis is studied by plotting graphs for different values of parameters relevant to a sparsely packed porous medium. We have derived a nonlinear two-dimensional Landau-Ginzburg equation with real coefficients near the onset of stationary convection at the supercritical pitchfork bifurcation and shown the effect of parameters on heat transfer rate. We have also derived a nonlinear two-dimensional cubic-quintic Landau-Ginzburg equation with real coefficients at the onset of stationary convection and discussed about the behavior of the convective system.

Keywords

Magnetoconvection, Landau-Ginzburg equation, Nusselt number, cubic-quintic Landau-Ginzburg equation.

Sephideer NFT Marketplace D-App : How to Mint And List Non Fungible Tokens on the Internet Computer Blockchain

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Abstract

Initially block chain was used for the purpose of having an immutable ledger which is completely transparent. For example BitCoin was created as a peer to peer electronic payment system. But as time passed by developers realized that block chain can also be used for running Decentralized Applications(DApps).DApps are the applications which are built on distributed platforms with trust distributed among its users & are completely open source, they are more transparent and accountable than the existing centralized applications.

Internet Computer (ICP) is a blockchain , a crypto currency , a protocol that can be used to build Decentralized Web Applications.

An NFT is a digital token on a blockchain with unique identification code which distinguishes one NFT from another.

This application model inspired from the OpenSea allows users to List, Mint and Sell their NFT's.The frontend of the application is built using the React Framework, the backend is written in Motoko Programming language which is used to configure our canisters. The block chain used to run the app is the Internet Computer.

Also we have created a custom crypto token on the Internet computer blockchain and this is used as a payment method for the NFT transactions.

Behavior and Performance Analysis of Reinforced Concrete Beam Column Joint Using Different Fibers

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Abstract:

The most important component of a building is the beam-column joint, and it is essential to model buildings and determine how it will behave structurally when subjected to seismic events in order to save lives and money. Although, there is a need to improve the ductility of conventional beam column joint since its low ductility produce low quality in the structure of buildings. Hence, Reinforced concrete beam column joint has been constructed that utilize IS code 13920:1993 concrete to provide ductile reinforcement in accordance with ductile detailing of reinforcement beam column joints as well as study the difference between maximum load, and ductility factor thereby, ductility of the reinforced concrete beam column gets improved to have it in a high level construction area. However, the shear failure in beam column joint is not considered which causes the heavy damage in the building. Hence Web reinforcement in beam column joint is designed that cast the specimen in concrete of grade M25 and the load responses are measured with an LVDT and a data logger. Hence this code of practice will improve the shear and moment carrying capacity thus the shear failure is eradicated. Furthermore, there is a need to increase the elastic performance and get enhancement in beam column joint so various Artificial fibers and Polypropylene steel fibers are used in the beam column joint to increase the performance of beam column joint. A fiber-reinforced polymer (FRP) is employed as externally bonded reinforcement in critical areas of RC elements. Thus the elastic property of the beam column joint gets enhanced and there is a decreased level of crack in beam column is observed. Moreover, when a joint is assumed to be rigid, the consequences of strong shear forces that arise inside the joint are not taken into account which lead to the unconditional damage to the building. Thus the Beam column joint bracket connection is employed for the strengthening in which casting specimens consists of mould prepared with sheets of 3mm thick plates with the beam column cross section of 100×200×500 and 700x200x100 mm . The ultimate load carrying capacity of the beam-column joint rises by 40% thus the damage in the building is minimized to larger extent with bracket connections. Thus the design provides a greater result with improved efficiency on ductility and strength of the beam column joint.

Study on the Mechanical Properties of Concrete by Using Sea Sand

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Abstract

The Compressive strength and flexural strength of 50% replacement with sea sand with river sand is similar to conventional concrete. There is no much effect of corrosion on sea sand concrete. Initial purpose of this undertaking is to get rid of the salt content material from the ocean sand by chemical treatment. Determine the performance of concrete by using sea sand as fine aggregate. It is one of the maximum within your budget fabric that may be changed for fine - aggregate in construction. Finally locating out the compressive strength of sea sand that is replaced for fine combination in concrete. In the existing undertaking, cubes have been forged for M25 and examined for compressive strength after 7, 14 days and 28 days. With the non-stop boom of infrastructural production worldwide, the delivery of river sand and clean water for making concrete encountered enormous scarcity especially for coastal regions. Sea sand has been notably better at the early age X-ray diffraction sample evaluation in addition showed that the ocean sand have are mark able effect on the surface. Also have a look at discovered that the usage of sea sand in concrete leads to corrosion of the reinforcement because of the presence of chloride ions and retard carbonation process of concrete. The present paper provides comprehensive evaluation of utilization of sea sand in concrete and in addition studies on sea-sand as fine aggregate in concrete.

Keywords

Sea sand, fine aggregate, scarcity, X-ray diffraction.

Time Series Analysis and its Forecasting methods

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Abstract

The most significant challenges that analysts face in a variety of fields, from finance and economics to manage production operations, to the analysis of political and social policy sessions, to examining the effects of people and the policy decisions they make on the environment, are related to the time-oriented data analysis and forecasting future values of a time series. Therefore, there is a sizable group of individuals in a range of professions, such as economics, finance, science, engineering, and statistics, who need to comprehend the fundamental idea of time series and forecasting. In this paper we will be discussing about time series, its components, and various kinds of forecasting techniques.

Keywords

Time-series, analysis, forecasting techniques, applications, components.

Knowledge sharing in agile software Development: Strategies, practices, and challenges

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Abstract

Software development is a knowledge-intensive task. Hence software development organizations focus on knowledge management (KM) so that knowledge can be utilized in an innovative way to find solutions for overcoming the issues that arise during the various software development phases. It supports software development organizations to gain and retain a competitive advantage. KM is important for success in agile software development as it facilitates collaboration and coordination among the members of the collocated or cross-functional development teams.

One of the key aims of KM is to increase efficiency through effective knowledge sharing. In this digital era knowledge sharing (KS) has turned into an indispensable component of the strategic operation of any organization. Studies have revealed that the noteworthy contribution of KS has an unswerving influence on the performance of any software organization. The leadership of the organization can support promoting the values of KS. It has been exposed that less offensive administration builds up KS culture among collaborators, which enhances job performance.

This research explores knowledge sharing in agile software projects. Added further, this research tries to ascertain KS, strategies, practices, followed by agile teams, and the challenges confronted by the practitioners in the agile software development environment. A conceptual framework has also been proposed to facilitate knowledge sharing in the co-located and distributed agile teams.

Understanding Technical Debt in Software Development: A global Multi-case Analysis

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Abstract

Technical debt is an extensively identified as a concern in software engineering that explains the tradeoff between the short-term profits of quick software deployment and the long-term worth of software that is effortlessly evolves, repair, amends and sustains. Technical debt in a code base that includes those structural elements that, if not revised, adds to raised operation and maintenance costs. Evading the adverse effects related to amassing technical debt involves technical debt management to be adapted as a core software engineering practice. This comprehensive study intends to present insights on understanding technical debt in various phases of software development and its prevalent causes and effects. In addition, a multicase analysis for studies conducted globally is presented to enhance the understanding of technical debt.

A Comparative Study of Pounding Effect on Multi-Storied Building with and Without Shear Wall

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Abstract

Dynamic impacts caused on buildings by wind and earthquake loads. There are many effects due to earthquakes, one of the effects that are recently seen is pounding. The pounding effect on adjacent structures occurs due to their completely different dynamical characteristics similar to the reduction of the separation distance between them. Although seismic loads are often taken into account in the design of structures, the effect of pounding on adjacent buildings isn't usually taken into account and mainly contribute for extreme and severe damages and failures. In the present research study, the effect of the pounding on the buildings was numerically studied under medium soil conditions in four different heights of RC multi-storied buildings in the different zone (III and V) analysed by using ETABS with and without shear walls, and the pounding effect by Response spectrum analysis. The story displacements and story drifts are computed, and comparisons are drawn from varying heights, and with and without shear wall conditions. As the result of the study, storey displacement and storey drifts are increased in adjacent buildings due to the pounding effect and can be reduced by the provision of the shear walls, increasing the clear gap between adjacent buildings, and decreasing the height difference in adjacent buildings.

Keywords

Pounding, Separation distance, Shear wall, Height

Assistance for Baby Management

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Abstract

Today, technology is being used extensively in all fields and plays a major role in our lives. Mankind has successfully been able to provide solutions to global challenges with the aid of technology. Since the main aim of using technology is to assist in our day-to-day activities, its implementation in helping new mothers to take care of their baby while also focusing on their other tasks and getting ample rest seems prominent. It is important for the mothers to receive support during this phase so that they are not overburdened and exhausted. With an aim to address this issue and provide an effective, economically viable solution, a system has been developed to provide assistance for the new mother and her family to remotely monitor the baby in its cradle through camera surveillance whenever required. In addition, features like diaper change status based on humidity measurement, baby cry detection, timely reminders and also control the cradle swinging, with all notifications, display and control provided by an IoT mobile application. This has been enabled with Wi-Fi connectivity so that the monitoring and control becomes accessible from anywhere in the house.

Review of Various Brain Tumor Detection Techniques

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Abstract

Extensive growth in the volume of irregular brain cells is known as brain tumour. Human brain is surrounded by stiff skull. There are various issues occurred due to growth of any tumour inside this restricted space. The malignant and benign are two main categories of the brain tumour. A number of such tumours are non-cancerous (benign). Secondary tumours, on the other hand, originate due to spreading of cancerous cells in the cerebrum from other body organs. These tumours can spread to rest of the body areas. The skull is pressurized to enlarge from inside in case of growth of any benign or malignant tumour. This tumour leads to harm in brain, and it may be dangerous to life also. The brain tumour is divided into two kinds - primary or secondary. The brain tumour detection techniques have various phases. The techniques of brain tumour detection are reviewed in this paper in terms of certain parameters.

Keywords

brain tumour, feature extraction, machine learning, deep learning

Green Synthesis of Mn₃O₄ Nanoparticles for Supercapacitor Applications

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Abstract:

Mn₃O₄ nanoparticles are successfully synthesized by an ecofriendly green synthesis method. The microstructural and electrochemical properties are studied. The XRD data exhibited (211) predominant orientation peak at $2\theta = 36.1^\circ$ corresponding to tetragonal structure of Mn₃O₄ with I41/amd (141) space group and an estimated crystallite size of 10 nm. The SEM analysis reveals that the average grain size of 120 nm. The vibrational studies from Raman and FTIR easurements were confirmed the presence of Mn-O bonding. The Mn₃O₄ nanoparticles exhibited high specific capacitance of 257 Fg⁻¹ at a current density of 1 Ag⁻¹ in 1M KOH aqueous electrolytes within the potential range - 0.2 V to + 0.8 V and about 90% of the initial capacitance was retained after 3000 cycles, indicating that the eco-friendly Mn₃O₄ electrode holds a good electrochemical stability and capacitance retention capability. The results suggest that the obtained Mn₃O₄ nanoparticles are the better candidate for supercapacitor applications.

Keywords

Mn₃O₄ nanoparticles, green synthesis, 1M KOH, specific capacitance

Electrochemical properties of Co_3O_4 nanoparticles in 1M KOH aqueous electrolyte

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Abstract

Solution combustion method is a low cost, simple, fast and productive technique for the synthesis of nano sized particles and therefore it has been used for the production of a variety of fine complex oxide powders for several advanced applications, including catalysts, fuel cells, and energy storage. In this study, porous cobalt oxide nanoparticles have been successfully synthesized by combustion of solutions containing cobalt nitrate hexahydrate ($\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$) and Urea (NH_2CONH_2) as precursors at low temperature. The microstructural, dielectric, magnetic and electrochemical properties of the prepared cobalt oxide nanoparticles are studied. The XRD spectra exhibited (220), (311), (222), (400), (422), (511), (440) orientations which corresponding to cubic structure of Co_3O_4 with Fd m (227) space group and 8 nm as the crystallite size on estimation. The SEM analysis revealed 30 nm as average grain size and shape of grains as spherical with variable pores. The presence of cobalt-oxygen bonding and the microstructure of the synthesized sample are confirmed from the Raman and FTIR studies. The dielectric studies show that the dielectric constant and dielectric loss of the sample decreases with frequency. The electrochemical properties of Co_3O_4 nanoparticles are studied in aqueous potassium hydroxide of concentration 1M electrolyte showed a high specific capacitance of 175 F g^{-1} at a scan rate of 0.5 Ag^{-1} and good electrochemical stability even after 2000 cycles.

Keywords

porous Co_3O_4 nanoparticles, Solution Combustion method, specific capacitance, electrolytes.

An Efficient Design of Deep Learning Model for Online Telugu Character Recognition

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Abstract

The Telugu character recognition process has received significant attention due to the exponential utilization of resources like images, smartphones, iPods, and paper documents. It can be divided into two types namely offline character recognition and online character recognition. Offline character recognition is a process of identifying Telugu characters from the scanned image or document whereas online character recognition enables to recognition of characters by the machine while the user writes. Several researchers have attempted to design online Telugu character recognition models by the use of distinct classification models and feature extraction approaches; however, the performance is yet to be improved. In this aspect, this study focuses on the design of optimal deep learning-based online Telugu character recognition (ODL-OTCR) model. The goal of the ODL-OTCR technique is to recognize as well as classify the Telugu characters in the online model. The ODL-OTCR technique involves data preprocessing to preprocess the character stroke in three ways namely normalization, smoothing, and interpolation. Besides, a beetle swarm optimization (BSO) with an EfficientNet model is utilized as a feature extractor and finally, Siamese Neural Networks (SNN) model is employed for the classification process. In order to showcase the improved performance of the ODL-OTCR technique, a series of simulations take place and the results are inspected in terms of different aspects. The simulation results highlighted the betterment of the proposed ODL-TCR technique over the recent techniques.

Keywords

Telugu character recognition, Deep learning, Parameter tuning, Machine learning, Preprocessing, EfficientNet

“Mind your language: An analysis of ‘text lingo’ as the ‘newspeak’ that limits creativity and imagination”

“Our language is the reflection of ourselves. A language is an exact reflection of the character and growth of its speakers.” — Cesar Chavez

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Abstract

The chariot of time is not just rolling but soaring in the present age of technology. Language does not only have the power to impact the emotions of individuals, but can spark revolutions and conquer nations. Language, with a history as old as or older than human beings, surely has the power not just to shape our identity and win us a job, but also to influence our thoughts. Language is the very essence and expression of our thoughts and emotions. There is many research done in the field of language and its impact on our perception and emotions. ‘Newspeak’, the imaginary language introduced by George Orwell in his dystopian novel, ‘1984’ explains about how language can be used to control emotions and expression. This study tries to analyse the use of ‘text lingo’ among the youth and its comparisons with ‘new speak’.

Keywords

‘text lingo’, language, ‘newspeak’, creativity

Detection of Parkinson's disease by Comparing Numerous Machine Learning Models and Xgboost Based on Vocal Features

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Abstract

Parkinson's disease (PD) is a brain ailment that produces unintentional or uncontrolled tremors such as shaking, stiffness, and trouble with balance and coordination. Symptoms normally appear gradually and intensify with time. As the condition develops, patients may have trouble walking and communicating. They may also have mental and behavioral changes, sleep issues, depression, memory problems, and weariness. In general, predicting the illness is challenging. Furthermore, the strong correlation of PD symptoms with other neurological symptoms leads to more than 25% of PD misdiagnoses. This prompted us to conduct a comparative literature review on how state-of-the-art machine learning implementations such as Logistic Regression (LR), Support Vector Machine (SVM), Decision Tree (DT), K-nearest neighbors (KNN), Random Forest (RF), Naïve Bayes (NB) classifiers are used in these methodologies with their corresponding datasets. Additionally, ensemble techniques such as XGBoost Classifier are used to boost accuracy. Our findings are compared to those of their respective studies. Implementing XGBoost on the Static Spiral Test (for detecting tremors) produced much more successful outcomes for all the experiments. This leads to the observation that the multi-modal technique, when combined with the ensemble method Xgboost classification (Extreme gradient boosting), provides a high test accuracy rate (95%) when compared to other classification techniques. The approaches' performance was evaluated using a credible dataset from the UCI ML repository.

Index Terms

Parkinson's disease, machine learning, ensemble learning, early detection, features importance.

Improvement Of Untreated Tuff with Green Cement “Geopolymer Cement” For Use In Roads Construction

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Abstract

The construction of roads is very important in the development of the country, the foundations of pavement are main elements. In view of the increase in loads and the deterioration of roads, the use of Untreated Tuff (UT) in the construction of pavements is increasingly being used. Since cement, the most widely used and effective Tuff treatment material, it has generated major amounts of greenhouse gases. New materials have appeared in civil construction as alternatives to traditional materials, one of them being geopolymers cement. Using geopolymers cement minimize carbon dioxide (CO₂) emissions and to benefit a variety of by-products into useful products. This paper study geotechnical characteristics of Tuff treated by geopolymer cement (TTG), geopolymer cement was an alkali activated metakaolin, metakaolin was obtained by burning a kaolin of Tabelbala (400 km from Bechar ALGERIA), and the activator was a mix of glass water and NaOH, the optimum molarity was determined by varying molarity of the activator : 8, 10 and 12 mole. The TTG gives better results than the UT, from the point of view of dry density. Mechanical property study was done according to NFP 94-093 .

Keywords

Geopolymer ; Kaolin ; Pavement ; Soil treatment

Experimental investigation on mechanical properties of air-cured activated concrete for rural pavements

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Abstract

In the present study, the probabilistic use of alkaline binders in Rigid pavements is examined. The performance of Conventional concrete and Alkali Activated slag concrete(AASC) along with Polypropylene fiber (PPF) inclusion is discussed. Complete cement replacement was done with Ground granulated blast furnace slag and a mix of M20 grade concrete is prepared as per IS 456 and IS 10262. Trial mixes are carried out for the selection of optimum Activator modulus (Ms) and also the percentage of Polypropylene fiber results are plotted. A combination of 14M KOH and Potassium silicate solution along with Ms of 1.25 and 5 percent Potassium oxide dosage is considered to be the best for slag mix. Mechanical properties are studied for both concrete mixes and it is noticed that the AASC +1%PPF performance is slightly better than another mix. The utilization of activated binder covers will limit the natural perils happening from increased OPC creation, alongside compelling usage of modern waste materials and protection of regular assets. It is more suitable for Rural Rigid pavements where the load-carrying capacity is low and it also helps in ecological and economical aspects.

SAAS Security with Google App Engine Service

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Abstract

An App Engine app is a single application resource composed of one or more services, depending on the amount of traffic it is intended to serve. The Google Front-end exposes the control plane of Google Compute Engine (GCE). Third-party apps can be installed and used in cloud SaaS setups in a variety of ways. Here, we are mainly aiming to prevent an unauthorized person into our systems by giving SaaS Security solutions.

Keywords

SaaS, Public cloud, Google App Engine, Cryptography techniques, Cloud Computing

Block Chain-Based Web Application Security in Decentralized Hybrid Cloud Environment

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Abstract

Millions of businesses use blockchain technology for different industrial applications because of its transparent, secure, and decentralized nature. The advent of Blockchain Technology allows us to develop a Decentralized Application called DApp on a peer-to-peer network, which can harden changes of contracts in the DApp and denial of service (DoS) attacks on the DApp. The advantages that blockchain brings to the table of SaaS providers are many, starting with building proof systems and sidestepping the security challenges associated with database systems, the advantages are extended to enhancing business reliability and increasing customer loyalty. Microsoft Azure offers a worldwide footprint that allows building a hyper-scale, secure data, and execution platform to deliver the next-generation applications on any blockchain platform. Blockchain as a Service (BaaS) on Azure provides a rapid, low-cost, low-risk platform for building and deploying blockchain applications. The applications of blockchain in cloud computing are linked to the Cloud of Things (CoT), a combination of Cloud computing and the Internet of Things (IoT). This paper introduces blockchain-based web application security in various fields and analyzes the security of each layer of the blockchain and possible cyber-attacks. In this paper, we first carry out a deeper survey about blockchain technology. Blockchain-based web application security. We assess the blockchain security risk analysis to derive comprehensive blockchain security risk categories, analyze the real attacks and bugs against blockchain, and summarize the recently developed security measures on the blockchain. Finally, the challenges and research trends are presented to achieve more scalability.

Keywords

SaaS; Blockchain; Hybrid Cloud; Security; Microsoft Azure; Cloud Computing; Decentralized application; BaaS.

Cyber Crime Detection Methodology & Tools: an Experimentation Research

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Abstract

Cyber-attacks adversely affect computers, software, networks or the Internet itself. So the organizations and products attract assistance from cyber forensics Investigators(CFI). CFI need to investigate crimes committed partially or entirely over the Internet or other electronic media. Investigating tools and procedures are needed to effectively search for, locate, and preserve all types of electronic evidence. This paper explore the experimentation for digital forensic process which deals with preparation for forensic, disk image analysis , network packet analysis, attackers browser history and forensic investigation using some of the computer forensic tools like OSForensics Tool ,WinHex , network forensic tools for the analysis network traffic using TCPDUMP And Wireshark and web usage tracking tools to know the web usage made by the attacker to justify the Locard's principle. Apache web server access log is analyzed to know about the location of the attacker. Lastly the paper deals with three appendices about -Appendix A-List of Digital Forensic Tools and Its Website Addresses, Appendix B-List of Packet Capturing Tools and its Features and Appendix C-Linux Commands and its use for Digital Forensics.

Comparison of EMG Signal Classification Algorithms for the Control of an Upper Limb Prosthesis Prototype

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Abstract

Vast information regarding muscle activity for clinical and engineering applications can be obtained via the EMG (Electromyogram). EMG signal are acquired through surface electrodes which are placed on target muscle set of healthy subjects aged between 23 to 30 years. In this work, six forearm movements have been chosen for classification purpose for both left and right hand. With Hilbert Huang Transform method a total of 21 features of time-frequency domain are extracted for 10 healthy subjects and classified using conjugate gradient method of supervised learning technique using artificial neural networks (ANN). The average accuracy at IMF-1 level obtained is 85.8% for left hand movements, and 86.2% for right hand movement classification. The results of using the Hilbert Huang Transform based ANN classification are quite promising when compared to another classification techniques as K-NN, QDA, LDA and Mahdi Khezri et al. different signal acquisition and classification techniques. The technique can be used for practical implementation of prosthesis for movement classification. Machine Learning algorithms (Decision Trees and Support Vector Machines) are proposed and compared to select a classification system for EMG signals to improve the performance of pattern recognition for the control of a prosthesis prototype. The training, validation and signal classification were made using the Classification Learner application of the MatLab software, using a database captured with the commercial myoelectric armband MYO which contain the information of eight different hand movements. The results show that Support Vector Machines algorithms have a better performance than the decision trees, reaching the 99.8% of accuracy with linear and quadratic kernel and the 99.9% using a cubic kernel.

Keywords

classification, machine learning, EMG, Artificial Neural Networks, prosthesis

Third Party Funding Mechanism and Judicial Attitudes and Responses in International Commercial Arbitration

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Abstract

Third-party funding in International Commercial Arbitration is one of the most contemporaneous and controversial issue in the normative framework in India. The last several years have witnessed increasing involvement of Third Party Funders in International Commercial Arbitration proceedings. Third-party funding has been considered as one of the means of access to justice for those who have a credible claim but no financial means to pursue it. Dispute resolution in India tends to be a cost-heavy proposition for the parties involved. The present discussion highlights the judicial attitudes and responses regarding TPF (Third Party Funding) from the delivery of procedural and substantive justice as well as suggesting legal and jurisprudential grounds in third party funding governance all across the world. It also points out that all the principles and appraisal of TPF which will ultimately contribute in delivering justice in both national and international commercial arbitration if third party funding is left to self-governance.

Keywords

Third party funding, justice, access to justice, international commercial arbitration

Analysis of Shear Lag Effect on Different Geometric Plans of Frame Tube Structure

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Abstract

In present due to overpopulation, limited land people are forced to keep space and there needs strictly limited with high-rise buildings are the best solution for providing people spaces for living and to work on, as the buildings are getting higher and slender there exposed to different loading condition which causes the building to lateral deformations. Due to this with the help of different structural systems the lateral stiffness of the buildings can be improved. there are many structural systems which can provide the buildings adequate strength and stability against lateral loading. The tube system concept is based on the idea that a building can be designed to resist lateral loads by designing it as a hollow cantilever perpendicular to the ground. The main ideology of tubular structure is to resist horizontal load by arranging structural element efficiently.

For the purpose of study of geometry of frame tube structures in this report frame tube structure has been modelled in four different geometries namely H-shape, F-shape, A-shape and Combined of 3 plans shape with no. of stories G+20 stories are considered to study the effects of Shear lag in the structure. The Linear Dynamic Time history Analysis is performed on a total of four building models. The parameters such as base shear and, story displacement, story drift and were studied.

Dynamic Analysis of Core Shear Wall Structures

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Abstract

The design of tall buildings is based on three criteria that is strength, durability, stability. The effect of oscillatory movement results in an extensive response in the structure when lateral loads are applied to a tall building. The most important dynamic characteristics of an earthquake are the peak ground acceleration, frequency and duration. These properties serve as the dominant rule in studying the behavior of structures under seismic motion. Shear walls are like vertically-oriented beams that carry earthquake loads downward to the foundation. When an earthquake occurs and also reduces the safety margin provided by non-structural components. The behavior of core wall is influenced by its proportion and support condition. The presence of shear wall can affect the seismic behavior of frame structure to a large extent, and the shear wall increases the strength and stiffness of the structure. The present study outlines the seismic design concepts in which different geometry of cores are applied to a building. In this a structure without core and with square and rectangle shaped core systems was modeled and subjected to components of earthquake. The performance of the structural models under seismic excitation was evaluated by conducting linear dynamic time history analysis. Seismic results are investigated in terms of joint displacement and structure member forces. Results show that the presence of core significantly reduces the seismic response and lateral sway of the structure in this plane.

Ethical Issues of Using Facial Recognition Technology

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Abstract

Facial recognition is considered one of the fascinating technological marvels. Rightly so, since it can recognize a human face from a photo, video, or in real time. Image recognition systems have come a long way from their inception to adoption in law enforcement and widespread use in consumer devices in terms of accuracy, speed, and algorithms. Given many controversies surrounding the ethics of facial recognition, such as identity fraud and privacy invasion concerns voiced by privacy critics and advocates, we're greeted with the million-dollar question: Does facial recognition need an ethical reckoning to make it more equitable and impactful? In recent years, critics questioned facial recognition systems' accuracy and role in identity fraud. Law enforcement agencies mistakenly implicated innocent people in riots in several cases. Additionally, identity management and storage remains questionable for many, haunting privacy advocates worldwide. Seems complicated, top six ethical concerns related to facial recognition systems include racial bias and misinformation, racial discrimination in law enforcement, privacy, lack of informed consent and transparency, mass surveillance, data breaches, and inefficient legal support. In this paper we examine various ethics to be followed while using facial recognition.

Performance of Light Weight Bricks Fabricated Using Different Waste Materials

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Abstract

Due to the qualities of brick, it is one of the most important and frequently used masonry units which is used in construction as a building material. Numerous attempts and efforts have been made to include wastes such as wood sawdust, rubber, processed waste tea, limestone dust, polystyrene, sludge, and fly ash into the brick manufacturing process. Recycling such trash into materials of construction is a feasible solution to the environmental crisis or pollution related issues. This contribution mentions the recycling of a variety of trash into light weight fly ash bricks. A variety of effectively materials have been explored which can be recycled very easily, as well as effects of these wastage on the physical and mechanical attributes of bricks are studied. The majority of bricks made of various types of waste materials have demonstrated beneficial impacts on the qualities of light weight fly ash bricks.

Keywords

Light weight fly ash bricks; Building materials; Waste recycling; Waste management.

AIoT: Concept, Review, Applications and Challenges

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Abstract

The term “AIoT” refers to a rapidly developing idea that essentially combines AI and ML. A review of the literature finds that nothing has been done to explore the applications and difficulties of the AIoT idea or to understand it. In our suggested research project, we have made an attempt to examine the novel and creative applications of IoT as well as a thorough, systematic literature review and the difficulties it encounters. This article introduces the IoT growth situation in India and discusses the security difficulties it confronts. This research also examines the risks, security concerns, and difficulties from an Indian perspective. The Internet of Things (IoT) has evolved into a variety of cutting-edge integrated solutions through three development paths of authentication, communication, and computation. For particular applications. But each layer of the three-tier IoT architecture faces a range of security risks because of the openness and resource limitations of IoT (Explained in detail in paper with diagram). The specificity and complexity of IoT security protection are systematically reviewed in this work, and we discover that Artificial Intelligence (AI) techniques like Machine Learning (ML) and Deep Learning (DL) can offer new potent capabilities to meet IoT security requirements. We examine the technological viability of using AI to address IoT security issues and provide a general overview of the AI processes used to address IoT security. We summarise typical AI solutions and contrast the various algorithms and technology utilised by various solutions for four key IoT security threats: device authentication, defence against DoS and DDoS attacks, intrusion detection, and various detection using ML. Although AI offers many new capabilities for the security protection of IoT, it also poses new potential risks and adverse consequences to IoT in terms of data, algorithm, and architecture. This paper concludes by explaining how future research could potentially focus on these issues. This research also compares and contrasts the IoT, IoE, and AIoT.

Different Hurdles and Consequences in the Fields of Engineering

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Abstract

Engineers are the backbone of an ever growing world. Every change from the 60's to 20's has led to an innovative century.

If we could describe engineers in one word it would be mindful. Aware of the surroundings, problems, environment and constantly driving innovation. We see problems that are yet to arise and have solutions for what was once considered impossible.

What builds engineers with this immense capacity of world wide development? How are engineers groomed to think beyond a common mind? What is engineering life about?

Well, it is certainly beyond a hard earned degree.

There is no guide to build yourself as a successful engineer but we will give you a deep dive in the hardwork, hurdles, and consequences of the journey of an engineering student.

There is no aspect of today's world that is not affected by work of engineers which means life of an engineering student starts by being aware and gaining knowledge of the entire world in technology, health, space, communication, architectural development, entrepreneurial culture and alot more.

Analysis of Crashworthiness of a Crash Box under Axial Loading for Automotive Application

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Abstract

Thin-walled structures with multiple cells, various wall patterns, or a combination of both, etc., are being studied by many researchers due to their energy absorption characteristics. Thin-walled structures with multiple cells are better at energy absorption than conventional single-cell tubes. For a car crash, thin-walled structural tubes play a significant role in energy absorption. The results are benchmarked with the generally thin-walled tubes (square tube), interpreted, and the best thin wall structured tube with the novel wall pattern is proposed. From the results, the crash box having square waves pattern showed an improvement of 25.36% in crush force efficiency compared to the standard base crash box tube.

Keywords

Crash Box, Metal Thin Walled Tube, Crashworthiness, Finite Element Analysis.

Chromium containing Basic Chrome Sulphate (BCS) leachates induced changes in growth, yield, photosynthetic pigments and water relation of wheat plant

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Abstract

Chromium (Cr) contamination of industrial sites and agricultural soils is common. The human body is at risk from this heavy metal. The characterization of physiological indices, including reactions to photosynthetic pigments, water relation as well as changes in mineral nutrient levels is necessary to acquire fundamental understanding of the nature of the adaptation to Cr overload. Present study aims to assess the toxic impact of chromium containing leachates collected from dumping site of Basic Chrome Sulphate (BCS) sludge which was situated at 26°24'57" NL and 80°3'28" EL at Khanchandpur Kharanja, Rania, Kanpur Dehat district of Uttar Pradesh, India. The pot experiment was conducted on wheat plant grown in pot in completely randomized design (CRD) to assess the Cr induced changes in plant growth, yield, photosynthetic pigments and water relation of wheat plant. The leachates were brought in laboratory. Different graded levels i.e., T1= Distilled water (Control), T2=25% leachates + 75% DW; T3=50% leachates + 50% DW; T4=75% leachates + 25% DW and T5=100% leachates were applied on wheat plant. Results indicated that wheat plant growth was significantly reduces on increasing the dose of leachates. Similar trend was also observed in seed yield, total biomass and number of seeds per plant. The photosynthetic pigments like chlorophyll a, chlorophyll b, total chlorophyll and carotenoid contents were significantly decreases on increasing the dose of leachates. The leaf surface area and water related parameter like relative water contents (RWC) and leaf area were significantly decreased while degree of succulence and specific water content were significantly increases. It was observed that maximum parameters were sharply decreased in T4 and T5 that showed that on plant showed tolerance up to certain limits Cr stress.

Keywords

Chlorophyll, water relation, BCS Sludge, Leachates

A Qualitative analysis on Application based different routings in wireless sensor network

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Abstract

Globally the wireless sensor network routing protocols are very important. All routing and clustering protocols are having important role in all the scenarios of supervising systems in surroundings. Environment based and traffic based routing protocols proving the key concept of wireless sensor networking. Routing challenges and related power requirements exploring very vast area of research. Energy requirement analysis in different applications of WSNs comprises a serious literature concern. Many aspects related to power, reliability, life time and throughput are primary focusing points in various application of WSNs. This paper is focusing on different building parameters in various applications of WSNs. Several numbers of routing and clustering protocols are existing to resolve many issues. Some protocols also examined to provide better survey.

Keywords

clusterization, packet transmit, water-mark, packet schedule

Advertisements and its Effect on Children

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Abstract

Advertisement is selling products, ideas, concepts, etc. in a paid ways Advertisement helps companies to reach to different customers. This paper deals with advertisements and their effect on the people, especially children. Advertisements impact on children is becoming stripping day by day. It creates awareness among children in different aspects like showbiz, news, sports, etc. But now a day's advertisements are creating more adverse impact on children mind. In this paper we discussed about on an average, how many hours does children watches TV or mobile in a day, what type of advertisements they prefer to see, the effects of advertisement on children attitude and buying behavior using SPSS data analytic tool regression method, the positive and negative effect of advertisement and how to overawe from those effects.

Keywords

Advertisement, Children, Divesting, Overawe

Future of Robotics in Healthcare

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Abstract

Good health is a primary requirement for every human being. The recent technologies are used by the medical professionals to enhance the results of diagnosis. The technologies help in reducing errors and giving the results of diagnosis in less time as compared to the conventional methods. Robotics is one such technology that has revolutionized the medical industry. It has proved to be very useful for in the health sector due to its versatility. This paper will discuss some of the applications of robotics in health care and few other technologies that are being used with robotics for better results.

Keywords

Robotics, healthcare, surgical, medical

Are the Customers aware and accepted towards Green Banking Practices?

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Abstract

This paper provides a general idea of Green banking as a budding area of creating competitive advantages towards the banks and expanding the mandate of Central Banks to protect the financial system and manage the risks of individual financial institutions. Faster experiences of climate changes are currently faced by all world countries. Financial institutions like banks have started proactive towards risk caused by the global warming and frequency unexpected climatic changes. Moreover, climate related risks are also causing physical and transitional threats to financial sectors. To over the situation the customers must be aware about the concept of 'Go Green'. Adoption of green banking concept offered enormous opportunities to the banks. The success of green banking has right mixture of technology adoption by banking sector, technology savvy practices of bank customers and the changing habits of banks customers. These initiatives support the bankers and financial institutions to understand and enhance awareness about green banking promotions among the common public. So, this study mainly aims to evaluate whether the customers are aware and accepted towards the various green banking practices which are prevailing in our country. 500 samples were taken to consideration for the study. The findings revealed that, about 40.20 percent of samples have gained high degree of awareness and most of the customers are aware and using paperless banking, E-banking, and various green banking practices. Further it also highlights, about 84.45 percent of the customers are highly satisfied with various Green Banking products in which they are used. Ultimately, the customers also believe that, the concept of Green Banking contributes towards, environmental sustainability and build Green Brand Image towards the banks.

Keywords

Green Banking, Customer Awareness, Indian Banking Sector, Green Banking Practices

Magnetized Bianchi Type-VIII String Cosmological Model In General Relativity

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Abstract

We have investigated Magnetized Bianchi type-VIII string cosmological model in general relativity. We assume that the current is flowing along x-axis so magnetic field is in the yz- plane. Thus F_{23} is the only surviving constituent of electromagnetic field tensor F_{ij} . The Maxwell's equation

$$\frac{\partial}{\partial x^i} (F^{ij} \sqrt{-g}) = 0$$

leads to

$$F_{23} = K(\sinh y)$$

where K is constant.

For the complete deterministic of the model, we assume that $\sigma \propto \Theta$ which leads to $A = B^n$ where A and B are the metric potentials and n is constant; σ is the scalar shear tensor and Θ is the expansion in the model. The general solution of the Einstein's field equations for the cosmological model have been obtained under the assumption $\rho - \lambda = 0$ where ρ and λ are the rest energy density and string tension density of fluid, respectively. The physical and geometrical characteristics of the model in the presence of magnetic field are discussed.

PACS: 98.80, -k, 98.80, Cq, 04.20, -q

Keywords

Bianchi type-VIII, Magnetic field, String, General Relativity.

Hybrid Project Management methodology: A new way of success to deliver projects efficiently

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Abstract

Project Methodology is a set of processes or instructions that shall be used for managing a project. The choice of methodology helps to define the framework to get the desired output from a project at a successful rate. The choice of methodology purely depends on the scope, industry, and type. The project methodologies play a vital role in the success as they help to deliver higher value in terms of performance which can be in terms of cost, time, quality, or many other factors that define the project's success.

The PMBOK describes clearly traditional and agile frameworks. With the trend of the growing world towards Agile, there exist two sides, and the need is to somehow combine both to have advantages of both. The paper proposes an approach of combining both and implementing a Hybrid Project management methodology that is not industry specific (HW, SW, Service, Automobile, etc.) and can be used for all types of projects like NPD, RD projects, SW projects, VALVE projects, Customer projects, etc. This can be used to deliver projects more efficiently by overcoming the shorting of the existing project methodologies used individually.

Index Terms

Project Methodology, PMBOK, Agile, Hybrid methodology, all types of projects, efficiently.

Effect of Hybrid Fibre on Mechanical Properties and Durability Characteristics of Ternary Blended Concrete

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Abstract

Concrete is an extensively used construction material for its various advantages such as low cost, ease of production etc. But it cannot be used alone everywhere because of its low tensile strength. So fibres both natural as well as artificial are used as resistance strengthening of concrete specially against cracking. Researchers all over the world are attempting to develop high strength concretes by using fibres and other admixtures in concrete up to certain proportions. The Hybrid fibres are dispersed and distributed randomly in the concrete during mixing and thus improve concrete properties in all directions. help to improve the post peak ductility performance, pre-crack tensile strength, fatigue strength, impact strength and eliminate temperature and shrinkage cracks. This study has been conducted for understanding the effect of Hybrid fibre in mechanical and durability characteristics of ternary blended concrete replacing 20% cement with fly ash 15% and 5%silica fume, studies were conducted on the compressive, flexural and tensile strengths of concrete by varying the polypropylene fibre percentage from 0 to 1% by volume of concrete by fixing the steel fibre at 0.5% in concrete. The obtained results where then compared with M30 ternary blended concrete. An increase of 39.23%, 47.28% & 20.72% over M30 ternary blended concrete at 28 days was registered for compressive, flexure and split tensile strength respectively. For durability, the results of TBSFRC (M2) shows better results in adding 0.5% steel fibre without polypropylene fibre by volume of concrete compared to other concrete mixes. The results of Sorptivity and water absorption of TBSFRC (M1) shows better results in adding 0.5% steel fibre without Polypropylene fibre by volume of concrete compared to other mixtures.

Keywords

Hybrid fiber, Silica fume, Ternary blended concrete, Flexural strength, Durability

Design of Dual Axis Solar Tracking System using Aurdino

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Abstract:

Due to day to day increase in energy demand very rapidly with population, there is need of usage of renewable energy sources. Solar PV panels are just like transducers which convert solar energy into electrical energy .But draw back with conventional fixed installation of these solar panels on a flat surface is very inefficient. This paper comes with an engineering solution to enhance efficiency of solar panel in a very cost effective way. This engineering solution is the dual axis solar tracking of solar panel. The dual axis solar tracking system for solar panel is the most appropriate way to increase efficiency of solar panel by tracking the sun completely. The system utilized an ATMEGA328P Microcontroller to control motion of two servo motors, which rotate solar panel in two axes. The amount of rotation was determined by the microcontroller, based on inputs retrieved from four photo sensors located next to solar panel. A functional solar tracking system was designed and implemented. It was able to keep the solar panel aligned with the sun, or any light source repetitively. Design of the solar tracker from this project is also a reference and a starting point for the development of more advanced systems in the future

A Multipurpose solar operated Pump Dispenser

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Abstract

Spraying pesticides is important for agriculture. previously, many methods are used, such as hand pump, power sprayer, portable motor sprayer, which are noisy and energy-consuming. a better solution would be a multipurpose solar operated pump dispenser is quite economical and eco-friendly as it uses solar energy which can be easily affordable by small and marginal farmers. It uses the solar power to run the motor. So, it is a pollution free pump compared to petrol engine sprayer pump. In this charged battery can also use for home appliances like glowing of CFL bulbs, mobile charging etc. The solar panels make up most (up to 80%) of the systems cost.

Indigo as Medicine in Ancient Times in India

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Abstract

A blue natural dyestuff is obtained from the various species of Indigofera. It does not exist in ready form, but is produced during fermentation with mixing of an agent. This is called “Indocan”, and is yellow, amorphous, and bitter in taste. A dye can generally be described as a coloured substance that has an affinity to stick to the material on which it is applied. The dye is usually used as a liquid solution and requires mordant to improve dye fastness. Indigo dyeing and the use to produce patterns on the cloths was in practice known from several centuries. Indigo dye is an important dyestuff. The study is to measure the impact of colour Indigo has held a significant place in History for thousands of years through painting on cloths, paper, murals, walls, rocks etc. Indigo has verily held a sustained presence and identity in the history and politics of India.

Robust Vehicle Detection of Imbalanced Data in High- Resolution Aerial Images

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Abstract

Due to the popularity of unmanned aerial vehicles (UAVs), vehicle detection in images from UAVs plays an important role in traffic surveillance and urban planning. However, the class imbalance issue is a significant factor limiting the performance of vehicle detectors. In UAV images, there are two types of class imbalance: foreground-background imbalance and foreground-foreground imbalance. Because many ground truths cannot be assigned to corresponding anchors in an anchor-based single stage detector due to low intersection over union, the foreground-background imbalance problem is exacerbated. As a result, we propose a novel bag-based single-stage detector that treats each feature map position as a bag. A simple and adaptive bag definition is proposed, as well as the positive sample definition method, which is used to ensure that more ground truths are assigned to appropriate bags. Furthermore, during the training process, we use an online hard example mining method to control the proportion of positive and negative samples. We propose a novel data augmentation algorithm that allows us to create appropriate visual context for under-represented classes in order to address the foreground-foreground imbalance. Extensive experiments show that the proposed algorithm outperforms other state-of-the-art solutions.

Keywords

Vehicle detection, unmanned aerial vehicles (UAV), Class imbalance problem, Data augmentation, Neural network, State-of-the-art.

Resilient Sustainable Housing in Madhya Pradesh for Urban Poor: Challenges & Opportunities

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Abstract

Housing is the leading sector in urban development that is of great importance to researchers and policymakers worldwide. It is a crucial factor in enhancing people's quality of life and specifying a sustainable and resilient community. Urban resilience holds as an emerging notion for the last decade. The phrase encloses widely admitted and operated despite that still faces a lack of consensus on its meaning and substances to policy and governance. The unprecedented advancement in population, number and size of our cities over the past few years include embodied in the sharp shortage of residence units which resulted in overcrowding, increased rents, inadequate urban living circumstances, and inadequate infrastructure services and increased high crime rates. Urban resilience is the quantifiable capacity of any urban system to sustain continuity with its residents despite all shocks and pressures while positively adapting and evolving toward sustainability.

This research study aims to identify the Sustainable resilience housing indicator for Madhya Pradesh, India. To outlines the prevailing situation toward Sustainable resilient housing we need to identify the challenges for inadequate housing infrastructure in Madhya Pradesh, India specially for urban poor. We are also identifying the various opportunities present within Madhya Pradesh locally produced sustainable building material and technology to enhance resilience and sustainability in housing.

Keywords

Sustainability, urban resilience, Public Policy, Housing shortage, Governance

Transformative change of urban core resilience towards urban health and environmental sustainability

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Abstract

To address planetary health challenges in cities, transformational change is urgently required. We consider how to frame and unpack city-level transformation towards synergistic benefits for urban health and environmental sustainability through an interdisciplinary review of the literature. We develop a conceptual understanding of how cities resilience can progress towards significant improvements in health and the environment by describing the characteristics of a 'healthy sustainable city' and bringing together the ideas underlying frameworks for health and sustainability. We investigate how cities change and develop a theoretical understanding of how cities can be directed to integrate health and sustainability. To meet the scale, speed, and form of change required, we conclude that urban transformation must be a multi-scalar process spanning city sectors. We propose that this is best accomplished in practice through a combination of mechanisms, including strengthening city governance, enabling technological and social innovations, implementing sustainable urban planning and infrastructure development, and motivating social behavior change, all of which are supported by systems-driven policy and practice-focused scientific evidence.

Keywords

Urban Planning, Urban Policy, Urban Resilience, Urban and health Sustainability, Resilience Theory, Governance, Innovative approach

A Study of Atma Nirbhar Bharat Abhiyan Schemes Prominence: An Emerging Industry for Sustainable Economic Development

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Abstract

The government recently announced an economic stimulus package as well as big-bang systemic reforms as part of the Atma Nirbhar Bharat Abhiyan (self- reliant India). The intended goal of this strategy is two - fold. For starters, interim measures such as liquidity infusions and direct cash transfers to the poor will act as shock absorbers for those who are under extreme stress. The second step is to implement long-term reforms in growth-critical sectors to increase their global competitiveness and appeal. Taken together, these steps have the potential to revitalize the economy and create new opportunities for growth in sectors such as agriculture, micro, small, and medium enterprises (MSMEs), power, coal and mining, defence, and aviation, among others.

However, several issues must be resolved in order to accomplish the vision of making India self-reliant. So, the goal of this study is to examine the role of the Atma Nirbhar Bharat Scheme in achieving Sustainable Economic Development by studying its challenges and opportunities in order to increase financial mobility and demand through holistic reforms.

Keywords

Atma Nirbhar Bharat, Self-reliant India Schemes, Economic Sustainability, Holistic Reforms, Financial Mobility

An Improved Bison Algorithm based Cyber Crime Data Analysis using Machine Learning

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Abstract

A variety of cybercrimes is increased speedily day by day in society; therefore, the defending cost for saving the society from cyberattacks is too enhancing from few lacs to several crores. The cyberattacks are launched over targeted object (system) through internet by intruder to perform spiteful events. The prior research approaches for cybercrime attempt as of absence of numerous evaluation strategies to recognize the cyberattacks, habitually for unstructured context. Hence, an Improved Bison Algorithm based Classification (IBA-C) is developed for examining the cybercrime data utilizing machine learning. The IBA-C is completely utilized for crime data classification to recognize the rate of cybercrime in India. The outcomes are generated on MATLAB 2021a tool for determining the better efficiency of IBA-C according to Accuracy (A), Purity index (P-X), and Intra-cluster Distance (I-D) against K-Means, ALO and BA algorithms for huge unstructured cybercrime datasets.

Index Terms

Accuracy, Bison Algorithm, Classification, Intra-cluster Distance, Purity Index.

Water Treatment Using Floating Wetlands

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Abstract

India is facing one of its major and most serious water crisis. After two consecutive years of weak monsoons, 330 million people — a quarter of the country's population are affected by a severe drought. With nearly 50 per cent of India grappling with drought-like conditions, the situation has been particularly grim this year in western and southern states that received below average rainfall. Therefore, restoration of water bodies & conservation of water is the need of the hour. Floating wetlands seem a very unique and eco-friendly solution not just for water treatment but for the entire lake restoration as a whole. FTW does not involve use of mechanical items, is low maintenance, restores habitat and has a lot of other benefits. But, since people and governments are not aware about this solution, it needs to be publicized more so that people become more and more aware of such solutions and actually implement it in real life situations. In this project, the application of FTWs for water treatment has been investigated. A pilot study was conducted on treatment of Akkulam lake water using floating treatment wetlands technology with canna plant. Through the pilot model, the effectiveness of canna plant in water treatment was studied.

Urban Development, Economic Advancement, and Importance of Resilient Growth in India

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Abstract

India has been home to world's earliest civilizations as well as some of the most prominent ancient cities. Urbanization in India is of peculiar nature and has been of immense interest to urban practitioners. Tracing back their roots to few centuries or more, Indian cities face unique challenges including sustaining fast paced development while retaining the cultural essence, modernizing the urban infrastructure while retaining the centuries' old identity, develop in a sustainable manner and be resilient to bear future shocks. These challenges necessitate careful planning both in economic as well as spatial terms.

This study reviews the post-independence policies of urban India with respect to focus on urban development, economic advancement, and resilient growth. The study highlights the interconnectedness (or the lack there-of) of channelizing economic growth while managing the sprawl and designing/ creating urban systems which are resilient.

A Trading Logistics Model from a change of Customer Behavior in a New Normal Era

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Abstract

Since the situation of Covid-19 began, many prevention methods have been introduced to prevent the spread of the disease such as social distancing, avoid traveling to crowded areas and refrain from social activities as a result, the customer learns and adapts to the change of the new normal lifestyle. As a result, a trading logistics model has been changed from traditional commerce to E-commerce model. Meanwhile, some customers still passion for traditional commerce logistics model. Therefore, this research aims to study the customer behaviors and opinions that design to go to the shopping center after the outbreak of the Covid-19. The research is done by using a questionnaire as a tool to collect the data. The statistical that use in the research is a percentage, mean, standard deviation, one-way analysis of variance test and Chi-square test. To answer the first hypothesis testing, one-way analysis of variance test is used, then found that the differentiation of age, education level, occupation, income and region of residence lead to the customer opinion significantly different at the 0.05 level. The second hypothesis testing, Chi-square is used, then found that the differentiation of age, education level, occupation, income and region of residence lead to the customer behavior significantly different at the 0.05 level. Approximate distance when travel to shopping center is less than 10 km. Finally, calculating the proportion of products found that the product purchase, from shopping is more likely to purchase from online, namely food, fresh produce, stationery, computers and laptops, and sanitary ware.

Keywords

Trading Logistics, Customer behavior, Change from Covid-19, retail, online

Seismic Evaluation of Multistoried frame System By Nonlinear Time History And Pushover Analysis

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Abstract

Study of past earthquakes reveals that, the stilt type or open ground storey in multi-storey building may lead to total collapse of a multi-storey building. Presence of infill walls in all the upper floor levels, except ground floor which is used for parking or social gatherings, is termed as stilt type or open ground storey building. Earthquake performance of reinforced concrete stilt type buildings is very poor during past seismic events. Stilt type buildings are very popular in urban centers of India, owing to its advantage in providing sufficient space for parking and other social facilities and are also widely accepted by the local municipal authorities. Stilt type of buildings are asymmetrical in nature and considering the rapid urbanization of hilly areas these stilt type buildings are also commonly constructed on hills which makes them highly irregular and asymmetrical in nature. Even after considering the design recommendation as underlined in various code of practice for open ground storey structures, there is no significant reduction in damage to stilt type of buildings. In fact, stilt type of buildings are the ones which suffer the most damage under seismic action. It is difficult to achieve the perfect symmetry due to absence of wall infill at stilt due to parking constraints. Problem of stilt type building should be addressed in such a way that the function of stilt level to provide parking is not hampered.

This study attempts to find the alternative solutions to stilt type symmetrical and asymmetrical frames. In stilt type buildings, the frame and masonry structures interact with each other, there are very few numerical models which captures this phenomenon. Consequently, the influence of masonry on overall global response of the structural system is analysed using nonlinear static and nonlinear dynamic analyses using several numerical models. Study concludes that, the stilt type frames can be improved by full infill wall frames, but partial infill frames are the best choice as they do not interfere with the function of parking at stilt floor.

“I Wouldn’t Have Made It Without Google Translate”: The Use and Abuse of AI-enabled Machine Translation in the EFL Classroom

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Abstract

The marriage between machine translation (MT) and artificial intelligence (AI) has significantly improved the translations produced by MT systems with outputs matching the translations of skilled human translators. This groundbreaking breakthrough has broadened the scope and uses of these systems and attracted more users to join the already existing many users who all started using them for different purposes, all the time and everywhere. One of the most under-researched uses of AI-enabled MT is inside the English as a Foreign Language (EFL) classroom. Observations and the growing body of research suggest that students are increasingly relying on MT in their learning processes especially in tertiary education where the language of instruction is not in their first language. The aim of this research project is to shed light on the uses of AI-enabled MT, specifically Google Translate (GT) in EFL academic writing classes. We want to find out the percentage of Saudi students who use GT in EFL academic writing classes and what for. We also would like to assess the extent GT’s use affect students’ writing quality, and the perceptions of EFL teachers and learners regarding the use of GT in English classes. A questionnaire was used to collect data from more than 300 Saudi male and female university students enrolled in different universities in Saudi Arabia. With pre- and post-tests for writing quality comparison between drafts with and without GT along with interviews with EFL teachers regarding their perceptions about students’ use of MT and GT in their writings, and their ability as markers to detect GT use in students’ assignments. The results echo the findings of other studies conducted around the world, indicating that AI-enabled MT holds a great potential not only for enhancing students’ learning, but also for creating more autonomous learners who take responsibility for their learning.

Pam: Privileged Access Management

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Abstract

Data security is difficult to implement public cloud storage system. Cipher text-Policy-Attribute-Based Encryption (CP-ABE) has been adopted as a promising technology for this purpose. Provides flexible, granular, and secure data access control. Cloud data storage with opposite but picky cloud servers. But, the only attribute authority in the existing CP-ABE scheme needs to perform time-consuming user authentication checks, distribution of private keys, so this leads to a single point performance congestion when adopting the CP-ABE method of a large secondary storage system. Clients can get stuck Queued for a long time to get the private key, decreasing system efficiency. Several privileged access control schemes have been proposed, these are the schemes that still cannot overcome the shortcomings. A new heterogeneous framework to eliminate single-point performance congestion to provide a more efficient access control scheme validation mechanism. This framework uses some attributes. Authorities share the load of verifying clients legitimacy. On the other hand, this scheme introduces a central authority generate private keys for legitimate users in contrast to others multiple authority access control system, each authority Manage entire attribute sets separately within a schema. For added security, an auditing mechanism recognizing attributes falsely or maliciously possessed by authorities. A normality check procedure is performed. Keywords: public cloud, multiple authority ,data access control, encryption.

Effect of Hybrid Fibre on Mechanical Properties and Durability Characteristics of Ternary Blended Concrete

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Abstract

Concrete is an extensively used construction material for its various advantages such as low cost, ease of production etc. But it cannot be used alone everywhere because of its low tensile strength. So fibres both natural as well as artificial are used as resistance strengthening of concrete specially against cracking. Researchers all over the world are attempting to develop high strength concretes by using fibres and other admixtures in concrete up to certain proportions. The Hybrid fibres are dispersed and distributed randomly in the concrete during mixing and thus improve concrete properties in all directions. help to improve the post peak ductility performance, pre-crack tensile strength, fatigue strength, impact strength and eliminate temperature and shrinkage cracks. This study has been conducted for understanding the effect of Hybrid fibre in mechanical and durability characteristics of ternary blended concrete replacing 20% cement with fly ash 15% and 5% silica fume, studies were conducted on the compressive, flexural and tensile strengths of concrete by varying the polypropylene fibre percentage from 0 to 1% by volume of concrete by fixing the steel fibre at 0.5% in concrete. The obtained results were then compared with M30 ternary blended concrete. An increase of 39.23%, 47.28% & 20.72% over M30 ternary blended concrete at 28 days was registered for compressive, flexure and split tensile strength respectively. For durability, the results of TBSFRC (M2) shows better results in adding 0.5% steel fibre without polypropylene fibre by volume of concrete compared to other concrete mixes. The results of Sorptivity and water absorption of TBSFRC (M1) shows better results in adding 0.5% steel fibre without Polypropylene fibre by volume of concrete compared to other mixtures.

Keywords

Hybrid fiber, Silica fume, Ternary blended concrete, Flexural strength, Durability

A Study on Six Sigma in Construction Projects by Using SPSS

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Abstract

The importance of quality improvement and excellent performance in the highly competitive world market, lead many organizations, their top managers, project managers, and engineers to implement the new philosophies such as pull scheduling and lean principle at their organizations. This paper describes the Six Sigma principle and framework as a quality improvement strategy by using SPSS software. In this paper we proposed the Six Sigma is a statistical methodology that provides a structured framework to organize and implement strategic process improvement initiatives to attain reductions in process variability or defects. The basic theory of six sigma, DMAIC (Define, Measure, Analyse, Improve & Control) methodology is been discussed in this paper. The data is analysed using RII and SPSS. Factors influencing Six Sigma Implementation has been identified using RII and top 7 factors are recognised by ranking. A t-test is performed and a significant value of 0.76 have been achieved which provide us the information of customer/clients satisfaction with the implementation of Six Sigma in construction project.

Keywords

Six Sigma, Quantity, DMAIC, RII, SPSS, t-test

AUTOML IoT – Predicting the Attacks in Digital Industry 4.0

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Abstract

Industry 4.0 is the present age of Fourth Industrial Revolution (4IR) which is the treasure of the digitalized data that embrace many forms of data like: text, documents, images, videos and many more. The actual pathway of data extracted from is the applications using world – wide. Internet of Thing (IoT) data, Cyber security data, mobile data, network data, social media data, health data, signals data, video data, images data etc, are the different forms of data. Intelligently analyzing the data is important to develop the smart and automated applications. With the emergence of Machine Learning and Artificial Intelligence techniques predictive measure should be accurate to know the prior attacks in the automated applications. Deep learning being a border family of machine learning methods will intelligently analyze the data in large scale. In smart automated applications, the key constraint is usability of machine learning techniques which can predict accurately. This paper, presents a comprehensive view of machine learning techniques used for predicting in IoT attacks. IoT 2020 dataset is considered for implementing a robust application for predictive analysis. This dataset consists of all the automated applications data which focuses on smart vehicles. Machine learning techniques like Decision tree, Reinforcement algorithm, KNN, Logistic regression are implanted under predictive analysis. Above all the paper also discusses about the AutoML techniques which usually apply on the smart automated applications. The overall scenario of the paper is, data is taken from the different IoT devices which are automated and preprocessed, different machine learning algorithms are used in classifier level. The paper highlights are it provides the reference point to the industry and academia for decision making in many fields like industry professional and decision makers in terms of technical view.

Keywords

Machine Learning, AutoML, Prediction, IoT attacks.

An Astute way of analysing and predicting the amalgamation of Machine Learning with Crop Cultivation

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Abstract

With dedicated contribution from cultivation community, India's agricultural sector stands as one of the biggest sector in production of food grains, fruits, vegetables and many more. Despite of this Indian farmers are facing a painful phase over last decades because of poor income in farming which increase the death ratio of farmers, indebtedness, so to remove the misery of farmers, the amalgamation of advance techniques are required to fostering the soil, nurturing crops and elevating livestock. It can help to bring down poverty, turn up incomes and ameliorate food security for 80% of the world's poor population, which belongs to rural areas and mainly depends on farming. India is the second largest population country in the world and also ranks second worldwide in farm outputs. Most of people in India have agriculture as their main occupation. Generally, farmers growing crops by applying fertilizers and pesticides in random amount which leads to vandalize soil and also cause less production of crop, wastage of money, etc. To address the above mentioned problem a sophisticated method is implemented using machine learning algorithms. In many precise techniques of Machine Learning prediction of moisture, level of humidity, amount of pesticides are predicted in this approach. SVM, Decision Tree and Logistic regression algorithms are implemented to achieve higher accuracy compare with other techniques.

Keywords

Crop Cultivation, Machine Learning, SVM.

Cross Site Scripting (XSS) Detection in Cyber World using Machine Learning Algorithms

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Abstract

In this Contemporary era of Web 2.0 technologies, there are innumerable websites and its advanced web applications. According to Cyber Security firm, High Tech Bridge 80% of websites have security flaws. The powerful usage of these web applications in many sectors like: finance, e-commerce, health care, banking, business, institutions, organisations etc. are incredibly evitable to open applications. The vulnerabilities in these applications are exploited by the attackers. The major reasons for such attacks are improper sanitization for applied input of the applications. There are many attacks identified at the level of web application testing, among them the most dangerous yet easy to attack is Cross Site Scripting shortly called XSS attack. A study carried out by symantic states that more than 50 % of websites are vulnerable to the XSS attack. It is mostly identified in the testing level. XSS is a code tactic which is similar to SQL injection where hackers inject malicious code into legitimate web application or website, often to compromise user credentials and take control of the user's session. This paper deals with the vulnerability of XSS attack testing and tools which are used to detect the vulnerabilities of major official websites. High end tools like Netsparker, Wireshark, Apache Tomcat are used to exploit the vulnerabilities. Furthermore, follows the advancement of the above by exploiting the same vulnerabilities on web Goat, with this a detailed report of the flaw is generated. In the end machine learning algorithms are applied on the vulnerabilities which detect the XSS attack. Nearly 4 – 5 machine learning algorithms are applied on the vulnerability report like: Decision tree, KNN, Logistic Regression, Naïve Bayes. Among these algorithms Naïve bayes algorithm performed well by giving highest accuracy among others. Machine Learning Algorithms are used to detect the XSS attack.

Keywords

Web application, XSS, Machine Learning, Vulnerability

Design & Performance of a PV/Thermal Solar Still

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Abstract

Numerous advanced techniques are being implemented to produce desalinated water from salinated water as the global freshwater demand is increasing rapidly. One such method for producing desalinated water from solar energy is the solar still. Solar energy still depends on the evaporation of water. It captures humidity and moisture to produce desalinated water. In this paper, a PV/T hybrid solar still is constructed, and four different situations are used to analyze its performance. The freshwater supply is enhanced from case 1 to case 4 and it further improves the efficiency of the PV module. As we continue with the analysis of case 1, one such method that makes use of solar energy as a source to produce desalinated water is the solar still. Here, in this case, salinated water is passed to the solar still to provide desalinated water. In combination with Case-1, the PV module is included in the model of Case-2. The increase in the temperature of the PV module will reduce the efficiency. In Case-3, a charge controller is employed to use the PV module to charge the battery. Case-2 is coupled with a heating element (Nickel-Chromium Wire) that is fed into the water basin. As a result, the efficiency of evaporation and condensation is improved, increasing the amount of freshwater produced. In Case 4, which differs significantly from the first three cases, the evaporation process is sped up by adding heat-absorbing materials (sand cubes) inside the basin. The evaporation process was accelerated by the heat-absorbing materials, allowing for the faster collection of more fresh water.

Technology -Enhanced Language Learning

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Abstract

Language defines culture, personal identity, social situations, and enhanced experiences, reflects on thoughts and feelings, and contributes towards democratic society and an essential part of interpersonal relationships.

English language plays a significant role in our lives. It is the chief language for education, business, politics and off course technology. It is an international language and only medium of communication in many countries. It is the most common second language in the world. It is the official language in 53 countries and more than 4,000 million people speak English across the globe.

English has provided unlimited access to modern world science, technology, information, banking, power, international communication and international cross-cultural integration. Learning English is essential if one wants to succeed in life. It is the major lancet of the true where the advanced countries have opened their doors to recruit technically qualified people. Only those who have command over English language are selected and given the job. At present people are using technology to a great extent. Now a days, it is used not only in the field of education, but also in science, engineering law, medical, arts, business, administration, management, agriculture and many more fields. People make use of computers and other technologies for the implementation of their tasks and activities which have ultimately contributed a great deal in empowering the individuals to achieve the desired goals. Usage of technologies have made individuals to communicate with each other, even when they are at remote places. Technology has manifested its important part by making individual's life more convenient and accelerated. Furthermore, technology has changed the present scenario of education. It has become a crucial tool in classroom learning, employment setting, organizing and managing the institution as well. One can find great progress among students' communication by the use of technology. Language learning has been enhanced through the use of technology. Technology can have positive impact on the language learning when the objectives and goals of curriculum are rightly implemented through pedagogical tools. Besides, it was exemplified that students' listening, speaking, reading and writing skills were enhanced and has favorable effect on grammar and vocabulary too. Problem solving has improved language learning significantly by its use. Utilizing technology in the EFL/ESL context provided enjoyable atmosphere for students to learn English language.

Various educational tools such as language labs, computerization, software, multimedia devices, mobile phones, audio/visual multimedia content, EdTech solutions, and social media can expedite more comprehensive language development. Language learning applications such as; Grammarly, Duolingo. Hello Talk, Babbel, etc to name a few provide exceptional experience of language learning. At Grammarly one can improve the writing skill by suggesting identification and replacement of complicated sentences with more efficient ones, refresh repetitive language, and endorse accurate spelling, punctuation, and grammar. Duolingo gives practice to the language learner to improve their vocabulary, punctuations, grammar and listening skills. It provides many certificate programs in different languages.

Strategies and Tools for Communicative Competence

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Abstract

Communication competence encompasses knowledge of communication patterns, aptitude to use and adapt that knowledge in numerous settings. It is actually a capability to communicate properly with other persons and there should be intelligibility, efficiency, and appropriateness in the language of a speaker. It is a prerequisite to understand the communication ethics, to cultivate cultural consciousness, and to contemplate critically. Communication competence bridges the gap of competence and performance dichotomy and is used almost in all the situations. The concept has a four component model viz. Linguistic or grammatical competence, sociolinguistic competence, discourse competence, and strategic competence (Michael Canale and Merrill Swain's model). It is not a static but a dynamic concept and has interpersonal rather than an intrapersonal traits. It has been acknowledged that communication competence should be the main objective of language learning and other classroom practices. Communication competence can be inculcated among the learners through different tactics, methods (Edutainment, Blend Learning, and Digital Integration), mobile applications (English Grammar, Kahoot, and Flinnt), and other softwares (Walden, British Council Application, IELTS Online free Tests). With the advancement of information technology, communication tools of language learning have become affordable and accessible. The paper will delineate how different methods, applications and softwares help to develop communication competence. It will also highlight the advantages of communication competence and how it helps in grabbing the different opportunities at different strata of life.

MHD Flow through Porous Medium past an Exponentially Accelerated Inclined Plate with Variable Temperature and Chemical Reaction Effects

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Abstract

In this paper, the combined influence of chemical reaction and radiation absorption effects on unsteady MHD free convection flow heat and mass transfer past an exponentially accelerated inclined plate embedded in a saturated porous medium with uniform permeability, variable temperature and concentration has been studied. The governing partial differential equations are solved by using finite difference technique. The velocity, temperature, concentration are shown graphically and skin friction Nusselt number, Sherwood number are shown by tables.

Keywords

Accelerated Plate, MHD, Radiation absorption, Chemical reaction

Expressions and Perform Hate Speech Detection

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Abstract

Communication between people with various cultural and psychological backgrounds has become more direct as a result of the rapid rise of social networks and microblogging websites, leading to an increase in “cyber” confrontations between these individuals. A specific group of individuals sharing a characteristic—such as their gender (sexism), their ethnic group or race (racial discrimination), or their beliefs and religion—are the targets of hate speech, which is the use of aggressive, violent, or abusive rhetoric. Although the majority of microblogging and online social networks prohibit the use of hate speech, the sheer magnitude of these networks and websites makes it nearly difficult to regulate all of their material. Therefore, it becomes necessary to automatically detect such speech and filter any information that uses derogatory words.

Keywords

Hate Speech, Offensive Speech, Social Media, Patterns, Unigram.

Optimization, Clustering and SVM Analysis on Blood Cancer Cells – A Machine Learning Model of Neural Networks

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Abstract

Medical imaging is sophisticatedly increasing due to its exponential analysis and readily demand of patients need for the Medical provisions and Emergency services all over the Globe. Machine Learning models helps doctors and diagnostic to candidly portray a picture and produce a substantial evidence based on the analysis these enormous model can produce. There are various techniques that can be utilized to separate and categorized by eloping the feature attribute into classification model or a Regression model. Here in this paper complete techniques has been discussed, analyzed, emulated and plotted for the extremeness of defining the complete testing and analysis of the Blood Samples found in Cancer patients especially related to subcontinent region. The figure of merit of AI has surpluses the boundaries of Medical domain with extreme error loss functions blessed with Machine Learning and its models such as Neural Networks. Classifications, Data processing and rigorous training of the sample helps in creating an Accurate model for 10 Billion into 1000 Billion clusters of 10 IU units of Blood samples. The degree of testing and analysis the data is hazardous task until the data is fed into the super computers which are installed with highly accurate Machine Learning Model of each perceptron of each layer to examine and analyze to return back with ease of producing the Medical reports in fraction of minutes of Neural Network. The paper is a complete top down approach for the Medical analysis's, Spectrometer scientist, ionization technician and Biomedical Engineer to utilize the modern tool of Neural Network to impact the utmost state of the art toward imaging through a Machine Learning Model.

Index terms

Python based Machine Learning, models, Test and Train Data sets, Clustering mode, Optimization, Confusion Matrix formulation, SVM model, Bias and Variance, Neural Network and Boosting Technique.

The Dataset's Regular Items' Detection Using Unstructured Data Classification

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Abstract

Association and Classification algorithms are used as novel text categorization methods for classification of unstructured data. In comparison to the KNN, NB, and SVM, our study employing different class of categorical data collected from various sources that are capable of performing effectively and offering higher exactness. We recommend the use of comparable algorithms based on comparisons with ours and association rules as a future study. Additionally, the multi-labelling component of our classification system may be of interest to researchers in this field. There has been a lot of research done on text classification, particularly with the development of the Internet. The assignment of labelling and tagging to text units like sentences, queries, paragraphs, and documents is a traditional NLP problem known as text classification.

Support for the categorization of texts, Vector Machines were also effectively utilised in this process. Hierarchical categorization was explored for hierarchical text data, for example, the thematic hierarchies and the Open Directory Project.

Keywords

Multi-labelling, Text classification, Hierarchical categorization, Support vector machine, Multinomial model

Novel Technique to Design and Perform Transient Analysis on Fractional Delay Filters using MATLAB

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Abstract

Fractional delay (FD) filters are digital filters that are designed to evaluate an arbitrary point of a signal in the time domain, even if it is located between two sampling points. In many signal processing applications and Network nodal analysis in Information Technology. The sampling instant is as important as the sampling frequency. Various methods have been developed to design such filters that Provides the solutions to issues related to Data packets in the IT and Neural Network . In this paper an overview of six design techniques will be reviewed, namely three non-recursive (FIR) and three recursive (IIR) variable fractional delay (VFD) filters. Different structures will be examined to implement the designs of these filters, and finally, the size and duration of the transient responses of the filters, caused by variations of the fractional delay, will be investigated using MATLAB.

Index terms

VFD(Variable Fractional Delay), VFD-IIR, VFD-FIR Filters, Pole Zero Balancing Technique, Recursive Filters, Interpolation, MATLAB.

Graph Mining Technique for Malware Detection in Cyber Security

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Abstract

The use of the internet and other communication technologies is quite important in our daily lives. Both security professionals and cyber criminals use data mining capabilities. Applications for graph mining can be used to analyze programmed behavior, surfing patterns, and other factors to identify potential cyber attacks in the future. As the number of internet users grows over time, working in the cyber environment presents enormous security challenges. The main online risks include malware, denial of service, sniffing, spoofing, and cyber stalking. By observing unusual system activity, behavioral patterns, and signatures, graph mining technique offer an intelligent method for Graph Pattern Malware detection which is a static Data analysis method. In this paper, applications of graph mining for frequent pattern analysis and detection are highlighted for quickly and accurately detecting malware.

Keywords

Graph Mining, Malware Detection, Cyber Security

A New Approach to Diagnose and Predict Covid-19 Severity Using Deep Learning Algorithms

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Abstract

Early diagnosis of coronavirus disease 2019 (COVID-19) is very important. This is especially important when certain vaccines are either in short supply or not provided sufficiently to stop this deadly increase in infections by recommending quarantine. While most patients with COVID-19 infection remain asymptomatic, others with symptoms are difficult to distinguish from those with other respiratory infections such as severe influenza or pneumonia, hence this diagnosis. is difficult. Chest CT scan can be effectively used as an alternative modality for detecting and diagnosing COVID-19 infection. In this study, we present an automated COVID-19 diagnostic and severity prediction system called COVIDC (COVID-19 detection by CT scan) that uses detailed feature maps from chest CT scans for this purpose. The newly proposed system not only detects COVID-19, but also uses a two-step classification approach (COVID vs. non-COVID and COVID-19) using deep feature maps and various shallow supervised classification algorithms such as LSSVM and random forest to handle data scarcity.

In all evaluation environments, COVIDC outperformed all existing state-of-the-art methods for detecting COVID-19, with an F1 score of 0.94 on the validation dataset, effectively detecting COVID-19 in real-world settings. Correctly classify the 9 out of 10 CT-scans that justify its use to diagnose COVID-19.

Keywords

COVID-19, CT scan, COVIDC, LS SVM, supervised classification algorithm, random forest

Authentication Technique for Privacy Preserving using Data Mining Approach for Providing Security and Integrity on Stored Data

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Abstract

Data Mining has emerged as a technology to allow users to access infrastructure, storage, software and deployment environment based on a process model. Key-value stores played an important role and give many advantages when solving those problems. Security is as considered as the most important thing in our daily lives. There are many types of security in which data security plays a vital role as most of the communication is done using data format. A user cannot access the system if they do not hold the correct correlated mechanism which can enhance the security of the system. An interesting problem known as Closest Keywords search is to query objects, called keyword protection, which together protection a set of query keywords and have the minimum inter-objects distance. Data deduplication to reduce the waste of storage space caused by storing the same static data from different users. In traditional file systems, there are many challenges for service builder when managing a huge number of big file. The privacy preserving model access control techniques or users access provisions centered on the common user attributes like Roles, which reduces the engrained access measure. Traditional features cannot handle the dynamic and multi-tenant nature of the model and the used environment as it has to address various technical, legal, and organizational challenges typical to the data and the process management.

Keywords

Data deduplication, Privacy preserving, Data mining, User attributes.

Stego Image Identification Using Steganalysis Technique

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Abstract

In this technological era, social media has a major role in people's daily life most people share text, stego images, and videos on social media frequently (eg: Twitter, Snapchat, Facebook and Instagram) stego images are one of the most common type of media share among users on social media so, there is a need for monitoring of images established in social media. It has become easy for individuals and small groups to fabricate these images and disseminate them widely in a very short time, threatens the credibility of the news and public confidence in the means of social communication. This research attempted to propose an approach to extracting stego image content classify and verify the authenticity of digital images and uncover manipulation steganalysis. Instagram is one of the most important websites and mobile image sharing application on social media. This allows users to take photos and digital photographic filters and upload pictures. There are many unwanted contents in Instagram post such as threat forged images, which may cause problems to society and national security.

Keywords

Stego image, Forgery, Steganalysis

Intrusion Detection System Using Machine Learning (Python)

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Abstract

With the evolution in wireless communication, there are many security threats over the internet. The intrusion detection system (IDS) helps to find the attacks on the system and the intruders are detected. Previously various machine learning (ML) techniques are applied on the IDS and tried to improve the results on the detection of intruders and to increase the accuracy of the IDS. This paper has proposed an approach to develop efficient IDS by using the principal component analysis (PCA) and the random forest classification algorithm. Where the PCA will help to organise the dataset by reducing the dimensionality of the dataset and the random forest will help in classification. Results obtained states that the proposed approach works more efficiently in terms of accuracy as compared to other techniques like SVM, Naïve Bayes, and Decision Tree. The results obtained by proposed method are having the values for performance time (min) is 3.24 minutes, Accuracy rate (%) is 96.78 %, and the Error rate (%) is 0.21 %.

Alternative Approach to Solve Goal Programming Problem

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Abstract

In this article, we study alternative simplex method to solve Goal programming problem. This method is going to be a new alternative approach, through which, we are able to solve goal programming problem with better solution as other methods. It will take less iteration, save many efforts and time by neglecting calculations of net evaluation $Z_i - C_j$.

Keywords

Goal Programming (GP), Linear Programming (LP), Optimal Solution, Alternative Simplex Method, Less Iteration.

2010 AMS Classification: 90C05

Electrochemical Properties of Porous Mn₃O₄ and Co₃O₄ Nanostructures

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Abstract

Porous like morphology with high specific surface area is more helpful in achieving high performance supercapacitors. Hydrothermal synthesis is one of the most commonly used methods for preparation of porous like nanomaterials. In hydrothermal synthesis, the formation of nanomaterials can happen in a wide temperature range from room temperature to very high temperatures. To control the morphology of the materials to be prepared, either low-pressure or high-pressure conditions can be used depending on the vapor pressure of the main composition in the reaction. In the present work, Hydrothermal method is employed to synthesize porous Mn₃O₄ and Co₃O₄ nanoparticles. The XRD spectra showed the characteristic peaks belong to the tetragonal structure of Mn₃O₄ and the cubic structure of Co₃O₄ with an estimated crystallite size of 18 and 21 nm. SEM analysis revealed the porous like morphology of the prepared samples. The electrochemical properties exhibited a specific capacitance of 421 Fg⁻¹ at 1 Ag⁻¹ current density for Mn₃O₄ and 284 Fg⁻¹ at 1 Ag⁻¹ current density for Co₃O₄. The lower crystallite size and variable porous like morphology was very useful for electrochemical studies. Porous Mn₃O₄ with lower crystallite size are considered as better candidate electrode material for supercapacitor applications.

Key words

porous Mn₃O₄, Co₃O₄ nanoparticles, hydrothermal method, capacitance

Physical and optical properties of Mn_3O_4 , Co_3O_4 and TiO_2 nanostructures: A comparative study

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Abstract

Solution combustion synthesis (SCS) is a low cost, simple, fast and energy efficient method to produce metal oxide nanoparticles with desired morphology. The final properties of the oxide materials can be fine-tuned by controlling crucial parameters like fuel type, metal precursors, stoichiometry and pH variations. In the present work, Solution combustion synthesis is used to synthesize Mn_3O_4 , Co_3O_4 and TiO_2 nanoparticles at equal molar ratio of fuel and oxidizer. The XRD spectra exhibited the formation of tetragonal Mn_3O_4 , cubic Co_3O_4 and tetragonal TiO_2 nanoparticles. The morphology of the samples is studied using SEM. The SEM analysis revealed that the prepared samples have different kind of morphology. The optical properties are studied using UV spectrometer. The electrochemical properties of the samples show that TiO_2 nanoparticles exhibited highest specific capacitance owing to their wonderful morphology, lower particle dimensions and high specific surface area.

Keywords

Mn_3O_4 , Co_3O_4 and TiO_2 nanoparticles, optical band gap and specific capacitance.

Robust Vehicle Detection of Imbalanced Data in High- Resolution Aerial Images

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Abstract

Due to the popularity of unmanned aerial vehicles (UAVs), vehicle detection in images from UAVs plays an important role in traffic surveillance and urban planning. However, the class imbalance issue is a significant factor limiting the performance of vehicle detectors. In UAV images, there are two types of class imbalance: foreground-background imbalance and foreground-foreground imbalance. Because many ground truths cannot be assigned to corresponding anchors in an anchor-based single stage detector due to low intersection over union, the foreground-background imbalance problem is exacerbated. As a result, we propose a novel bag-based single-stage detector that treats each feature map position as a bag. A simple and adaptive bag definition is proposed, as well as the positive sample definition method, which is used to ensure that more ground truths are assigned to appropriate bags. Furthermore, during the training process, we use an online hard example mining method to control the proportion of positive and negative samples. We propose a novel data augmentation algorithm that allows us to create appropriate visual context for under-represented classes in order to address the foreground-foreground imbalance. Extensive experiments show that the proposed algorithm outperforms other state-of-the-art solutions.

Keywords

Vehicle detection, unmanned aerial vehicles (UAV), Class imbalance problem, Data augmentation, Neural network, State-of-the-art.

Maximizing Profits Through Stock Booking By Forecasting Stock Prices Using Deep Learning Techniques

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Abstract

The trend of stock exchange prices is always uncertain for the stockholders and venture capitalists and are governed by multiple factors that influence them. In this project we aim to predict the stock market trends using deep learning and machine learning techniques. We had chosen four distinct organizations from current stock exchange to be our dataset for experimentation and evaluation. For this purpose, we have taken 10 years of stock data of top IT companies listed on NASDAQ from Yfinance such as Microsoft. This study compares five machine learning models (Decision Tree, Random Forest, Adaptive Boosting (Adaboost), eXtreme Support Vector Classifier (SVC), Logistic Regression and deep learning methods such as Long short-term memory (LSTM). For this purpose, we have taken 10 years of stock data of top IT companies listed on NASDAQ from Yfinance such as Microsoft. This study compares five machine learning models (Decision Tree, Random Forest, Adaptive Boosting (Adaboost), eXtreme Support Vector Classifier (SVC), Logistic Regression and deep learning methods such as Long short-term memory (LSTM).

We have initially done the data analysis for these IT companies using past one year data from Yfinance. The evaluation of algorithms and creation of model uses 10 years of stock data from Yfinance. We have truncated the last 60 days of data and used it for testing and prediction. The remaining data of 9 years and 10 months has been used for training the LSTM model. When the predictions are made on the test data which is the last 60 days data and compared with the actual stock values of the last 60 days, we observed that the LSTM model that we have developed has given high accuracy with very minimal deviation. The application is hosted as a web application where the admin of the system can analyze the stock data, compare multiple algorithms on the dataset and create the final model for predicting the stock values. The application is hosted as a web application for users to utilize the services of making future predictions for stock data. The application has been developed to predict the stock values for 4 IT companies but the system is capable of forecasting the stock values for the next 60 days for any given ticker symbol. We observe that the profits can be maximized by enabling the users to use the predicted stock prices for their day to day stock purchasing or selling activity. This model can be extended to any stock exchange and the predictions can be utilized by multiple people as it is hosted as a web application.

Modelling of Subsurface Seepage over Sloping Aquifer in Ditch Drain System Without Vertical Recharge

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Abstract

An analytical solution of governing ground water flow equation in linearization form with specified boundary conditions is solved by adopting integral transform methodology namely Laplace transform. By employing numerical methodology, solution of correlated nonlinear version is deduced. Impact of linearization of nonlinear governing equation, recharge and slope of impermeable barrier on water variation in flow region of finite extent is elaborated taking aid of the various numericals. Innovations of head response over small changes in every hydraulic variables of unsteady fluid transport are effectuated through sensitivity analysis of transient flow. These solutions in turn utilized in prediction of water depth in relation with asymptotic conditions. Relation between flow rate and sloping angle of aquifer is explained graphically. Corresponding nonlinear equation is solved by numerical scheme. Comparison of numerical and analytical solution is also portrayed graphically. In addition, sensitive analysis of hydraulic head, flow rate of different aquifer parameters is also explained. Ground water mound and its spatial location are computed using iterative scheme.

Keywords

Aquifer, Clogging layer, Boussinesq equation, Robin boundary condition

A Study of Atma Nirbhar Bharat Abhiyan Schemes Prominence: An Emerging Industry for Sustainable Economic Development

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Abstract

The government recently announced an economic stimulus package as well as big-bang systemic reforms as part of the Atma Nirbhar Bharat Abhiyan (self-reliant India). The intended goal of this strategy is two-fold. For starters, interim measures such as liquidity infusions and direct cash transfers to the poor will act as shock absorbers for those who are under extreme stress. The second step is to implement long-term reforms in growth-critical sectors to increase their global competitiveness and appeal. Taken together, these steps have the potential to revitalize the economy and create new opportunities for growth in sectors such as agriculture, micro, small, and medium enterprises (MSMEs), power, coal and mining, defence, and aviation, among others.

However, several issues must be resolved in order to accomplish the vision of making India self-reliant. So, the goal of this study is to examine the role of the Atma Nirbhar Bharat Scheme in achieving Sustainable Economic Development by studying its challenges and opportunities in order to increase financial mobility and demand through holistic reforms.

Keywords

Atma Nirbhar Bharat, Self-reliant India Schemes, Economic Sustainability, Holistic Reforms, Financial Mobility

Sign Language Recognition using Machine Learning

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Abstract

The application of machine learning in various fields is gradually increasing. This can be contributed primarily to the improvement in recognition systems and technology developing significantly. A significant portion of the population is afflicted by speaking and hearing disabilities which make communication especially in online settings near impossible. In this paper, we implement sign language recognition model capable of converting sign language to simple text in real time.

Keywords

Mediapipe, NumPy, OpenCV, landmarks, neural network, Jupyter

Analysis of Model Order Reduction Techniques in Discrete Time Control System

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Abstract

In the modern scenario people are in computer era where all machines are controlling by the computer. To achieve this, the control system plays an important role. To reduce the higher order discrete time system is a big challenge in digital control system. This paper represents the analysis of proposed and existing model order reduction (MOR) techniques in discrete time system. It presents a combined proposed modeling technique based on Time Moment (TM), Markov Parameters (MP) and Bilinear Routh Approximation (BRA) in w -domain. Bilinear transformation method has been used to convert z -domain transfer function model in to w -domain and obtained reverse conversion process by inverse bilinear transformation method. The denominator coefficient and the numerator coefficient of the combined proposed model is achieved by using BRA technique, TM and MP techniques respectively. To find out the numerator coefficient, it used only TM and MP as case 1 and only TM as case 2. The flexibility of proposed techniques is explained by examples. On the basis of quantitative parameters of time response and impulse response, it compares the combined techniques with existing model order reduction techniques. To obtained result has confirms that case 1 and case 2 are quite simple and able to generate stable model.

Performance Analysis of LSTM and RNN for the prediction of Epilepsy using Intracranial EEG

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Abstract

Epilepsy is the one of the most common neurological disorders in the world second only to migraine which makes it one of the important neurological problems to be combated in the modern world and the most sensitive of all nervous system related disorders.

Automatic detection of these Epileptic seizures can improve the patient's quality of life. Current Electroencephalogram (EEG)-based seizure detection systems encounter a variety of challenges in real-life situations, The EEG signals are non-stationary and seizure patterns vary across patients and recording sessions. It is prone to numerous types of noise that negatively affect the detection accuracy of epileptic seizures.

We propose a new framework that automatically learns the discriminating EEG features of epileptic seizures. Specifically, to reveal the correlation between successive data samples, the time-series EEG data are first segmented into a sequence of non-overlapping epochs. Long Short-Term Memory (LSTM) network and Recurrent Neural Networks are developed as independent models to learn the high-level representations of the normal and the seizure EEG pattern, these two Deep learning models are trained and tested respectively and contrasted on various metrics for their performance analysis.

The astounding results obtained from our LSTM model on the well-known benchmark clinical dataset from CHB-MIT University repository demonstrate the superiority of our proposed approach over the existing state of the art methods and models. Compared to current methods that are quite sensitive to noise, the proposed LSTM Deep Learning model maintains its high detection performance in the presence of common EEG artifacts (muscle activities and eye-blinking) as well as white noise.

Keywords

Epilepsy, Electroencephalogram (EEG), Deep Learning, Long Short-Term Memory (LSTM), Recurrent Neural Networks (RNN), Performance Analysis

Techniques for Identification of Multiple Faults in DFIG Wind Turbines and Analysis for their Impact and Solutions

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Abstract

The signal processing technology and approaches utilised for fault identification have been reviewed in this work, which is a review of research papers from the past ten years that are linked to faults in the doubly fed induction generator (DFIG) in wind turbines (WT). It has been discovered that DFIG operates with a variety of electrical and mechanical issues. The rotor winding and stator winding of the DFIG WT are damaged by the interturn short circuit defect, which occurs in both the rotor and the stator of the device. Bearing and gearbox failure make up about 59% of all DFIG defects, as opposed to interturn fault. And there are 28% and 9%, respectively, of stator and rotor defects. Additionally, it was discovered that only a small number of writers used vibration signals for analysis, with the majority of studies using current signals (CSAM). Some authors utilise SCADA to analyse signals. Current and torque signal analysis and current and power signal analysis are two brand-new analysis methods that are suggested. To identify and diagnose the defects in the DFIG, techniques such as the wavelet transform (WT), particle filter method (PFM), windowed scalogram difference (WSD), finite element method (FEM), and harmonic order tracking analysis (HOTA) are used.

Keywords:

DFIG, WT, Fault Diagnosis, Interturn Short Circuit Fault (ITSCF), Bearing and Gearbox Faults.

Pam: Privileged Access Management

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Abstract

Data security is difficult to implement public cloud storage system. Cipher text-Policy-Attribute-Based Encryption (CP-ABE) has been adopted as a promising technology for this purpose. Provides flexible, granular, and secure data access control. Cloud data storage with opposite but picky cloud servers. But, the only attribute authority in the existing CP-ABE scheme needs to perform time-consuming user authentication checks, distribution of private keys, so this leads to a single point performance congestion when adopting the CP-ABE method of a large secondary storage system. Clients can get stuck Queued for a long time to get the private key, decreasing system efficiency. Several privileged access control schemes have been proposed, these are the schemes that still cannot overcome the shortcomings. A new heterogeneous framework to eliminate single-point performance congestion to provide a more efficient access control scheme validation mechanism. This framework uses some attributes. Authorities share the load of verifying clients legitimacy. On the other hand, this scheme introduces a central authority generate private keys for legitimate users in contrast to others multiple authority access control system, each authority Manage entire attribute sets separately within a schema. For added security, an auditing mechanism recognizing attributes falsely or maliciously possessed by authorities. A normality check procedure is performed.

Keywords

public cloud, multiple authority ,data access control, encryption.

Review of Experimental Research on Ultrasonic Consolidation and Additive Manufacturing

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Abstract

Electron beam welding (EBW), laser beam welding (LBW), disunion stir spot welding (DSSW), and resistance spot welding (RSW) are only a few of the older technologies used to fuse homogeneous metals or alloys. The transition to UC/UAM was spurred by issues with welding consistency and the necessity of welding at melting temperatures. To create low-temperature solid structures, UC/UAM uses ultrasonic radiation to forge metallurgical connections between metal or nonmetal foils at room temperature. The purpose of this piece is to bridge the gap between the welding industry and the market by explaining how to combine ultrasonic metal welding with electrical discharge machining (EDM) and other special machining techniques. Testing the microstructure and conducting studies on UAM/UC is essential.

Key words

Ultrasonic metal welding, electro discharge machining, ultrasonic consolidation, ultrasonic additive manufacturing

Open-source software: Understanding considerations and challenges

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Abstract

Nowadays open source has transformed the face of technology – it lets clients and businesses realize in what way the code functions, accelerating highly innovative software development. It permits code reprocessing, improving collaboration, and achieving goals. Since its initiation in the software community, people have had different perceptions of open-source software, as per their experience including licensing, code ownership, and development, it has grown to be more significant for technology projects. This study presents a comprehensive overview of open-source software including the sustainability perspective, different considerations when adopting open-source software, and challenges when using open-source software. In addition, a few Use cases of open-source software are included to enhance the insights about open-source development and licensing

Possession Of Remote Data Protocol Check for Evaluating Cloud Storage Efficiency

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Abstract

Data availability is critical in cloud storage servers, while data integrity ensures that the data owner does not lose their outsourced data. Because cloud service providers are semi-trusted, cloud service providers should not report cloud data losses to data owners in order to improve their reputation. As a result, data owners just need to examine the availability of their outsourced data in the cloud storage server. To achieve data integrity, we propose in this study a novel approach termed the remote data integrity checking protocol based on homomorphic hash functions. The data owner will outsource the data tags into the cloud server in this technique, and these tags will later be checked by the data owner to ensure data integrity. In addition, we are integrating dynamic operation mechanisms for tracking file block insertion, deletion, and update actions. Based on the results of our system experiments, the proposed protocol efficiently provides data integrity to the cloud server.

Keywords

Key Generation, Tag Generation, Challenge Generation, Proof Generation

Multi Ethnic Study of Diabetes [MESD]-An Intelligent Predicting Model for Diverse Population

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Abstract

Diabetes is a metabolic disorder comprising of high glucose level in blood over a prolonged period in the body as it is not capable of using it properly. Diabetes is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation, retinal damage and foot ulcers. The condition is a result of the inter-linkage of lifestyle choices, xeno-genetic, psychological, socio-economic, medical disorders and geographic attributes. Machine learning-based decision support systems for the prediction of chronic diseases have become immensely popular for better prognosis/diagnosis support to health professionals. Current computational methods for diabetes diagnosis have some limitations and are not tested on varied datasets or peoples from different countries which limits the practical use of prediction methods. This study identifies classifiers which work with optimal accuracy over three ethnicities. Three unique datasets were identified for this study which are an Indigenous population of USA, German population and Indian population for accurate prediction, diagnosing and treatment of disease. Machine learning algorithms were applied on the datasets and a comparative study was made. For Indian ethnicity, GPC, RF, DT predicted with accuracy of 91.62% each. For Germany ethnicity, the same performed with 97%, 98.2% and 97.8% respectively. For Indigenous tribe of USA when GPC, RF and DT were applied, the performance deteriorated to 61%, 78.6%, 71.8%. SVM and LDA performed better with 80.2% for Indigenous tribe of USA. Random Forest performed with high accuracy on Indian and German population but performed with slightly lower accuracy for tribe of USA. Our work reduces the gap in polygenic risk prediction accuracy between Non-Asian and Asian populations.

Expert Machine Learning Algorithms to Predict Start-up Unicorns

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Abstract

Human decision-making will soon be surpassed by artificial intelligence, which is now a hot issue in research. There is still a disagreement as to whether humans or machines are better at complicated and creative tasks like innovation. [2] A machine's failures can be divided into two categories: processing and interpreting "soft" data (information which can be quantified) and predicting the future in situations of "unknowable risk" (severe uncertainty). When this occurs, the computer lacks representative data for a specific outcome. There is still a need for humans to use their intuition to analyse "soft" information. [5] Thus, we use a Hybrid Intelligence approach to combine the complimentary qualities of humans and robots in ability to predict the future of businesses. To achieve this goal, we adopt a design science research methodology to construct a Mixed Intelligent program that uses the strengths of both computer and intellectual capacity to illustrate its applicability for predictions under severe uncertainty.

Index Terms

Hybrid intelligence is a term that refers to a combination of both human and machine intelligence.

Robust Scalability, Efficient Energy Consumption model for Wireless Sensor Networks using Machine Learning Techniques

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Abstract

Technology advancements in wireless communication allowed for the development of small, low-cost, low-power and multifunctional sensor nodes for wireless sensor networks. The concept of “3 any” - anybody, anywhere, and at any time - is driving the growth of wireless networks. Scalability, energy consumption, environmental conditions, and the nature of the application all influence the architecture of a sensor network. Sensing, processing, and communicating all take a significant amount of time and effort. As a result, one of the most important considerations for wireless sensor networks is reducing power consumption [5]. Choosing the right routing plan is critical to ensuring that packets are delivered on time. By inventing protocols that consume less energy while communicating, researchers hope to increase the life of networks. A wireless sensor network that harvests energy from the environment is a viable alternative to battery-powered networks [9] because the cost of recharging batteries is too high. In order to gather energy from the environment, nodes are used. This research surveys energy efficient routing in wireless sensor networks as well as proposes the approach to energy harvesting in wireless sensor networks using the machine learning techniques which increases the efficiency in terms of accuracy and precision.

Index Terms

Protocols for routing, Efficiency in energy use Sensor networks that are not wired, Routing via clusters, Energy harvesting.

A Machine Learning model to predict fraud detection

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Abstract

Now-a-days online transactions have become an important and necessary part of our lives. As the frequency of transactions is increasing, the number of fraudulent transactions is also increasing rapidly. Finance fraud is a growing problem with far consequences in the financial industry and while many techniques have been discovered. Data mining has been successfully applied to finance databases to automate the analysis of huge volumes of complex data. Data mining has also played a salient role in the detection of credit card fraud in online transactions. Fraud detection in credit card is a data mining problem. The performance of classification techniques is applied on a highly skewed credit card to detect the fraud data. To reduce fraudulent transactions, we use machine learning algorithms like random forest classifier and decision tree. They can predict the accurate score for the data. Our paper aims to identify the hidden patterns that help in detecting fraud in credit cards by using the Machine Learning model and computation is fast as compared to the traditional rule-based data mining approach.

Method for Reducing Leakage Power in CMOS Very Large-Scale Integrated Circuits

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Abstract

In spite of the fact that CMOS technology scaling has led to a reduction in leakage currents, the performance increase has not been achieved without certain downsides. The situation has grown extremely precarious as a result of scaling into the ultra-deep-submicron (UDSM) domain. These undesired leakage currents need to be maintained to a minimal in order to ensure that the circuit can function correctly. It turns out to be rather challenging to build leakage-free nanoscale CMOS circuits. The channel length of devices is being reduced down to sub-100 nanometres, which means that leakage power is becoming an issue. We provide a circuit strategy for managing the voltage at the device's source terminal in order to cut down on the leakage currents that are caused by MOSFETs. When compared to a traditionally constructed inverter, a CMOS inverter that was constructed using the approach that was recommended has a static power dissipation that is 98% lower, and the total power dissipation is 30% lower. In computer simulations, the total amount of power that is consumed by NAND gates and NOR gates that are manufactured using the same process is decreased by 15.89% and 18.83%, respectively, when compared to the power consumption of their traditional analogues. The analysis and reporting of simulation results for an 11-stage CMOS ring oscillator are carried out with the help of the approach that was recommended. Comparisons are made between the recommended circuits and two existing approaches regarding power usage as well as latency. The Power-Delay Product of circuits that were created using the approach described is adequate (PDP).

Keywords

CMOS; UDSM; leakage power; CMOS inverter; low power dissipation.

A Novel System for AYUSH Healthcare Services using Classification and Regression

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Abstract

There are roughly 4000 AYUSH hospitals spread out across India under various councils and hospitals run by the Indian government. Today's atmosphere makes it more challenging than ever to locate a suitable AYUSH facility for the treatment. The AYUSH Ministry provides India's top option for healthcare delivery. The government is examining strategies to lower expenditures while enhancing patient care. We are proposing the ground-breaking idea of e-healthcare which involves various novel features like suggesting various tools to the patients those need to communicate with the healthcare professionals as per their convenience remotely. This research suggests an interactive system using Android in line with this trend. By integrating different bio-medical data sources that contain information pertinent to the hospital demographics, their inpatient procedure rates, Outpatient department, etc., we proposed a system that surveys on the various AYUSH hospitals to find. This system uses the Google Map API for tracking and highlighting the location to the nearby AYUSH hospitals with opening and closing timings. Additionally, the proposed system plays a crucial role in emergency scenarios by supporting the user in performing the necessary first aid techniques. Using this strategy, the entire system demonstrates that this research provides a superior method for making decisions than past studies.

Analyzing Cybercrime's Underground Market Using Data Science

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Abstract

Despite the rapid growth of cyber dangers, little study has been done to lay the groundwork for future academics and professionals in the field of information systems to follow. CaaS, a criminal economic framework that underpinning the cybercriminals underworld, is unknown to the general public. Since there is a void in the field of cybercrime research, we decided to use a data analytics method from a designing scientific viewpoint to examine it. First, we present a data processing foundation for the study cybercrime underground, and then we define CaaS and crime ware as well as an accompanying classification algorithm to accomplish this purpose to exemplify how the infrastructure and classifications model provided in this paper could've been developed and applied, we create an organizational design. A massive dataset first from internet security community is then used to analyze the underground market of cybercrime using this software. This work contributes to the design artifacts, foundations, and methodology in this field by using a design science strategy. On top of all that, it offers important advice on how governments and corporations in a broad array of industries may prepare for cybercrime assaults.

Index Terms

Crime Ware, Criminal Ware, Underground Economy, and Hacker Community all fall under this umbrella term.

Energy availability of elite Indian adolescent boxers

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Abstract

Purpose: Energy availability (EA) has been evidenced to influence health and performance outcomes of elite athletes. However, this has not been reported sufficiently amongst Indian adolescents. Hence, this study aimed to report the daily energy availability of elite Indian adolescent boxers. **Methods:** This descriptive cross-sectional study recruited 32 state level boxers (females:14; males:18) aged 10–19 years using purposive, saturation sampling and assessed their energy availability. Weight, height, and skinfolds at 4 sites (biceps, triceps, subscapular and suprailiac) were taken to calculate body fat using Siri's equation & Fat free mass (FFM) calculated. Energy intake was assessed using a 24-hour recall method for one day and exercise energy expenditure by activity record method for the same day of training. Boxers were classified as optimal EA (Females: > 30kcal/ kg FFM; Male: >25 kcal/ kg FFM) and low EA (Females: ≤ 30 kcal/ kg FFM; Male: ≤ 25 kcal/ kg FFM) and compared based on gender using the Man-Whitney U Test. **Results:** Among 32 boxers 43.75% were females and 56.25% were males. The mean energy intake of boxers was 2571 ± 609.7 (Females:2137 ± 266.9; Males: 2908 ± 592.5, p=0.00006), exercise energy expenditure was 1723 ± 330.2 (Females:1518 ± 109.9; Males: 1882 ± 360.7, p=0.00019) and energy availability was 17 ± 8 kcal/Kg FFM (Females: 13.6 ± 5.5; Males:19.5 ± 8.9, p=0.0174) per day respectively. 87.5% were categorized to have low EA and the rest 12.5% had optimal EA. It was observed that 100% of female boxers and 43.75 % of male boxers were under low EA. Of the 32 boxers surveyed, 75% are non-vegetarians, 12% are ova vegetarians, and 12.5% are vegetarians. While 75% of athletes eat three times a day, the remaining 25% eat five times a day. It was found that 12.5% of athletes skipped meals, specifically lunch, due to paucity of time. Snacks like samosas, panipuri, ice cream, and bread pakoras are popular among 62.5% of the population. About 6.25 percent of the population uses nutritional supplements like BCA. **Conclusions:** Occurrence of low EA was higher amongst female boxers than males. This study reveals a need for risk assessment along with measurement of EA using indirect calorimetry and conscious food behavior change especially amongst female boxers.

Keywords

energy availability, Indian adolescent athletes, boxers

Factors affecting User Acceptance of an Online Teacher Evaluation System using the Unified Theory of Acceptance and Use of Technology

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Abstract:

The success of new technology introductions cannot be achieved if the users do not accept and use the technology. Problems might be encountered during integrating a new piece of software into the organization's operational pattern even how many functional tests are performed because of the "mystery factor". For a successful implementation of any application, user acceptance is highly essential. The objective of the research work is to study the factors affecting the satisfaction of the students to adopt online teacher evaluation.

In this research, the four constructs of the Unified Theory of Acceptance and Use of Technology (UTAUT) were used namely: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Data were derived from an online survey with 338 respondents. Weighted mean was used to determine the level of user satisfaction and Somer's delta was used to determine the strength of PE, EE, SI, and FC to Satisfaction. In the context of the user acceptance of the Online TER system, the study concludes the acceptance of the hypotheses: the aspects of user satisfaction are related to the aspects of performance expectancy, social influence, and facilitating conditions

A New Approach to Generate Set of Prime Numbers with Using Non-Overlapping and Non-Empty Sets

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Abstract :

This is research review article regards one of the methods to generate prime numbers. For set P containing prime elements p_1 through p_n , each to power n , where $1 \leq n \leq \infty$. $P = \{p_1^n, p_2^n, p_3^n, \dots, p_n^n\}$ where furthermore, Part A and Part B are partitions on P (i.e. Non overlapping, non-empty subsets that together account for all elements in A $\subset P, B \subset P, A \cap B = \emptyset, A \cup B = P$) Such that any product derived by multiplying elements of part A will be co-prime to any product derived by multiplying elements of Part B. Now I have to proposed one method to generate set of prime numbers with using of following condition. "The absolute difference of any product obtained by multiplying each and every prime element in partition A and then adding or subtracting any product obtained by multiplying each and every prime element in partition B must also be prime (or the number 1) as long as the result meets the condition that it is less than $p_{(n+1)}^2$. Mathematically denoted by following equation". If the following condition is met $p_x = |\prod_{n \in A} n \pm \prod_{n \in B} n| < p_{n+1}^2$ then , p_x is a prime number or the number 1.

Keywords:

Prime number, Co-prime.

2020 Mathematics Subject Classification: Primary 11D45 ; Secondary 11G45,11G50.

Simulation and Comparative Study of ORC System with R123 Refrigerant using Aspen Plus

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Abstract

The dependence on non-conventional sources is growing due to the shortage of fuel resources in conventional energy sources. Several technologies are being developed to use non-conventional energy sources, among them the Organic Rankine Cycle (ORC) system, which can utilize multiple non-conventional energy sources. Before proceeding for practical setup, it is required to simulate such ORC system using ASPEN PLUS software where the efficiency of the system is prior noted. The present paper aims to simulate two different ORC systems using R123 refrigerant and present a comparative analysis among them. It is found that using R123 refrigerant the basic ORC system at a mass flow rate of 2 kg/s takes heat input of 348 kW and develops 11.983 kW of power at the turbine outlet although the heat rejected by the system is 336 kW and 0.503 kW of power is required to run the pump. It is also found that with the same mass flow rate in the modified ORC system with a heat input of 348 kW and developed 13.69 kW of power at the turbine outlet although the heat rejected by the system is 334 kW and 0.54 kW of power is required to run the pump. The net power output of the basic cycle and the modified ORC system are 11.48 kW and 13.15 kW respectively. The thermal efficiency of the basic system is 3.29 % while using the modified ORC system it is found 3.77 %. Therefore, a modified ORC system has a thermal efficiency increase of 14.58 % and produces 14.5 % more power compared to a basic ORC system.

Keywords

ORC system; Modified ORC system; Low grade energy; non-conventional energy source; R123 refrigerant.

