About the Conference

The First International Conference on Research Communications in Engineering, Science and Management (ICRCESM)– 2025 promises to be a milestone event in the field of research. This Collaborative endeavor aims to bring together distinguished Scholars, Researchers, Practitioners, and Students from around the globe to delve into the latest Advancements, Trends, and Challenges. The Conference will feature insightful Keynote Speeches, Panel Discussions, Paper presentations, and Collaborations that drive innovation and progress in our field.

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Abstract Book Proceedings of First International Conference on Research Communications in Engineering, Science and Management (ICRCESM)– 2025– Organized by: M2E2C2 (Mechanical, Management, Electrical, Electronics, Civil and Computer Science Engineering Departments), Ramachandra College of Engineering (A), Eluru, Andhra Pradesh, India.

Date of the Conference: 30.05.2025 & 31.05.2025

Editor (s)
Dr. Raffi Mohammed
Dr. Subramanya Sarma S
Dr. Bairysetti Prasad Babu
Dr. Chiranjeevi Aggala

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Preface

First International Conference on Research Communications in Engineering, Science and Management (ICRCESM)-2025 - Organized by the M2E2C2 (Mechanical, Management, Electrical, Electronics, Civil and Computer Science Engineering Departments), Ramachandra College of Engineering (A), Eluru, Andhra Pradesh, India. **Event Organizer:** RSP Research Hub, Coimbatore, Tamil Nadu, India, held successfully on 30th & 31th May 2025. 156 teams from 10 countries, including Philippine's, Mexico, Armenia, Egypt, Oman, Indonesia, Iraq, Malaysia, Japan, USA and PAN India, including 15 Indian States from 31 reputed universities and 84 colleges, participated in this conference. The objective of this conference is to bring together entrepreneurs, academicians, research scholars, and postgraduate students from around the world to encourage, acknowledge, and support research in all these areas by providing opportunities for them to exchange and share their experiences, fresh concepts, and research findings and discuss the pragmatic challenges encountered and solutions adopted in the aforementioned interdisciplinary areas through a wide range of research activities and publications.

During the conference, keynote speakers were **Mr. Amit Ojha**, Chief Technology Officer, **Topic:** Adaptive Emotional AI Interfaces for Hyper-Personalized Customer Engagement in Digital E-commerce, **Mr. Prince Kumar**, Principal Enterprise Architect, **Topic:** Designing Autonomous Enterprise-Scale Deep Fake Detection Architectures: Securing Financial Ecosystems Against Emerging Digital Fraud Threats, **Mr. Anish Kumar Jain**, Director, Software Engineering at Capital One, **Topic:** Integration of Explainable AI (XAI) in Credit Card Fraud Detection Systems: Enhancing Transparency in Software Engineering Solutions, **Ms. Priti Nathani**, Senior Physical therapist, **Topic:** Technological Integration for Coordinated Multidisciplinary Care in Home-Based Physical Therapy: Barriers, Enablers, and Patient-Centered Outcomes, **Mr. Karan Alang**, Principal Software Engineer, **Topic:** Meta-Learned Data Pipeline Adaptation for Continual Learning in Non-Stationary Data Streams, **Mr. Gaurav Dixit**, Vice President, **Topic:** AI-Driven Sustainable Omni-Channel Product Management in Retail: Real-Time Demand Sensing for Personalized, Eco-Friendly Assortments, **Mr. Nikhil Kassetty**, Software Engineer, **Topic:** Leveraging Serverless Multi-Cloud Architectures for AI-Driven Real-Time Fraud Detection in FinTech, **Mr. Dipesh J Kashiv,** Group Product Manager, Cisco, **Topic:** Self-Evolving AI-Driven Networks: Designing Adaptive Communication Architectures through Continual Learning Models, **Mr. Sathish Rao**, Senior Engineering Consultant, **Topic:** Transportation Systems Management and Operations, **Mr. Prakash Subramani**, SAP Architect, **Topic:** AI-Driven Predictive Analytics and RPA Integration for End-to-End Billing Cycle Optimization, **Ms. Deepaben Bhavsar**, Regulatory Affairs Manager, **Topic:** Ethical and Legal Implications of Using Artificial Intelligence in Regulatory Submissions and Review Processes, and **Mr. Naveen Kunchakuri**, Senior Machine Learning Engineer, **Topic:** Secure AI Integration with MLOps.

Conference Chairperson of each session are **Ms. Laxmi Vanam,** Data Specialist, Mr. Swapnil Ghate, Principal Product Manager, **Mr. Saravanan Thirumazhisai Prabhagaran**, Principal Architect, **Mr. Dipesh J Kashiv**, Group Product Manager, Cisco, **Mr. Jayanth Kolli**, Cell Test Engineer, **Mrs. Arpita Hajra**, Senior Manager, Deloitte Consulting LLP, USA, **Dr. Ashish Tiwari**, Assistant Professor, Department of Computer Science and Engineering, Amity University, Lucknow Campus, Uttar Pradesh, India, **Dr. Sarika Ghanshyam Jadhav**, Assistant Professor, School of Computer Science, Engineering, and Applications, D Y Patil International University, Pune, Maharashtra, **Dr. G .Vanitha**, Associate Professor, Department of Computer Science Engineering, Chaitanya Bharathi Institute of Technology (A), Gandipet, Hyderabad, Telangana, **Prof. (Dr.) Sailesh Suryanarayan Iyer**, Professor and Dean, Rai School of Engineering, Rai University, Saroda, Dholka, Ahmedabad, India, **Dr. Kamaljyoti Talukdar**, Associate Professor, Department of Mechanical Engineering, Dhemaji Engineering College, Assam, India, **Dr. M. Sudha**, Associate Professor, Department of ECE, SNS Institutions, Coimbatore, Tamil Nadu, India, **Dr.A.M.Arun Mohan**, Associate Professor, Department of Civil Engineering, Sethu institute of Technology, Virudhunagar, Tamil Nadu, India, **Dr. S. Kaliappan**, Professor, Department of Mechanical Engineering, KCG College of Technology, Karapakkam, Chennai, Tamil Nadu, India, **Dr. I. Mohana Krishna,** Assistant Professor, K L Business School, K L University, Vaddeswaram, Guntur, Andhra Pradesh, India, **Dr. P. Saravanan**, Associate Professor, Department of Chemistry, St. Joseph's College of Engineering, Chennai, Tamil Nadu, India, **Dr. Renuka Sagar**, Professor, Department of Artificial Intelligence and Machine Learning Ballari Institute of Technology and Management, Ballari, Karnataka, India, **Dr. Sudharson D**, Associate Professor, Department of AI & DS, Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India, **Dr. K. K. Baseer**, Associate Professor, Department of Computer Science and Engineering, GITAM School of Technology, GITAM, Bengaluru, Karnataka, India, and **Dr. Monica Bhutani**, Associate Professor, Department of Electronics and Communication Engineering, Bharati Vidyapeeth College of Engineering, New Delhi.

11 Oral Presentation sessions are planned and successfully held under the joint efforts of conference chair members, presenters, and conference members through hybrid mode. Many recent trend topics are discussed. The best presentations were selected under the UG, PG, Research Scholar, and Faculty categories, which were evaluated by conference chair members and the conference team as per the given rubric sheet. 156 abstracts are included in these proceedings and have been classified into six focus research areas for corresponding sessions held at the conference. We would like to express sincere gratitude to all the authors for their dedicated contributions to the proceedings. We would like to extend our thanks to all the technical committee members and reviewers for their constructive comments on all papers also, to the organizing committee for the sincere and dedicated work. Finally, we would like to thank the RSP Research Hub for producing this volume. We strongly believe that the participants of ICRCESM- 2025 have enjoyed a wonderful and fruitful time during the conference.

PROCEEDINGS OF

ICRCESM - 2025

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Organized by

M2E2C2 (Mechanical, Management, Electrical, Electronics, Civil and Computer Science Engineering Departments), Ramachandra College of Engineering (A), Eluru, Andhra Pradesh, India

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RSP Research Hub, Coimbatore, Tamil Nadu, India

Abstract Proceedings
(Special Edition)

About the College

Ramachandra College of Engineering (RCE), Eluru, was established in 2008 by the visionary Late Sri. Ghanta Ramachandra Rao. Recognized by the AICTE and permanently affiliated with JNTUK, RCE stands as a premier Autonomous Institution dedicated to excellence in engineering education. Under the dynamic leadership of Sri. K. Sai Rohith, Managing Director and Secretary, the college has achieved remarkable milestones such as NAAC A+ accreditation, NBA accreditation for all departments, and a four-star IIC rating for Innovation and Entrepreneurship. RCE offers a wide range of UG and PG programs in engineering, supported by experienced faculty and state-of-the-art infrastructure, including modern labs and advanced classrooms. The serene, green campus in Eluru provides an ideal environment for learning and innovation. With a strong focus on stakeholder satisfaction, RCE boasts a 90% placement rate and maintains robust industry connections, ensuring students are well-prepared for successful careers. Committed to academic excellence, research, and innovation, RCE continues to shape the future of its students and contribute to the field of engineering education.

About the Conference

The International Conference on Research Communications in Engineering, Science, and Management (ICRCESM)-2025 is a prestigious international forum that aims to bring together researchers, academicians, industry professionals, and policymakers to share their latest research findings, technological advancements, and innovative solutions in engineering, science, and management. This multidisciplinary event will serve as a catalyst for academic and industrial collaboration, fostering discussions on emerging trends, challenges, and opportunities in various technological domains. ICRCESM-2025 is committed to promoting research excellence, enhancing interdisciplinary knowledge exchange, and bridging the gap between academia and industry.

About the RSP Research Hub

RSP Research Hub core purpose, vision and goal is to foster technological innovation and excellence for the benefit of researchers. We embrace the global vision of the Researchers to enhance the technologies and innovations such as Artificial Intelligence (AI), Block Chain, Internet of Things (IoT), Big Data, Machine Learning, etc. that are on the verge of making a difference to the society. Numerous company/college infrastructures are utilizing cloud services for analytics and data storage. This Hub provides a forum for the dissemination of original research results, new ideas and practical development experiences which concentrate on both theory and practices by focusing on all the frontier topics in Science, Engineering, Botany, Management, Commerce and all the multidisciplinary areas that are having applications in all fields. Our mission is to ensure Quality, Research, and Knowledge exchange extension for the entire development of Technologies committed in practicing professionalism and in meeting the demands of International Conference Hub.

About the Departments (M2E2C2)

The Mechanical Engineering Department at RCE, founded in 2011 with 60 students, grew to 120 by 2012 and launched a PG program in Machine Design in 2014. Aiming for excellence, it provides quality education, promotes research, and nurtures innovative, employable graduates with leadership skills. With advanced labs and modern classrooms, the department focuses on material science, thermal engineering, and fluid dynamics research, encouraging student participation in conferences and workshops. Its strong curriculum and extracurricular opportunities ensure 100% admissions, showcasing its reputation.

The MBA program at Ramachandra College of Engineering (RCE) was established in 2009 with an initial intake of 60 students, expanding to 180 by 2014. Approved by AICTE and affiliated with JNTU Kakinada, the program aims to develop leadership and analytical skills for the global business landscape. Focusing on finance, human resource management, and marketing, the program emphasizes applied business education in a multi-cultural setting. Faculty provide mentorship, career guidance, and encourage research and conference participation. The curriculum, enriched with case studies, assignments, and assessments, ensures a comprehensive learning experience. Supported by well-equipped computer labs and libraries, the program fosters industry interaction, practical exposure, and professional growth, preparing students for successful careers in the corporate world.

The Department of Electrical and Electronics Engineering (EEE), was established in 2008, caters to the advanced learning and research needs of UG and PG students. It is well-structured and dynamic, with highly qualified faculty members who have extensive research experience. Committed to high-quality education and industry-relevant training, the faculty ensures students acquire both theoretical knowledge and practical skills. The department updates its infrastructure regularly to keep pace with industry advancements, promoting innovation and practical learning while actively engaging in research and consultancy projects in collaboration with leading organizations.

The Department of Electronics and Communication Engineering was established in 2008 with an initial intake of 60 students, later expanding to 180 by 2014. In 2012, the department introduced an M. Tech program in VLSI Design with 18 seats to cater to the growing demand for advanced education. Equipped with modern laboratories and a team of qualified faculty, the department focuses on delivering a strong foundation in electronics and communication engineering. It emphasizes a balance of theoretical knowledge and practical experience, preparing students for successful careers in the industry. Specialized training in software design and hardware-software integration further enhances students' skills, making them industry-ready.

The Department of CIVIL Engineering, established in 2014, aims to provide high-quality education. It offers an NBA-accredited B. Tech (Civil) program with dedicated faculty. A key focus is creating an industrial-like environment for students through spacious, well-equipped labs. The department also hosts seminars, workshops, and entrepreneurship programs to keep students updated with evolving technologies.

The Department of Computer Science & Engineering (CSE) was established in 2008 with an initial intake of 60 students, expanding to 120 in 2012 and 180 in 2019. Accredited by NBA in 2018, the department is committed to academic excellence and quality education. With a team of experienced faculty specializing in diverse areas of Computer Science, the department consistently achieves high student pass rates. Known for producing skilled engineers, graduates secure placements in top companies like Infosys, TCS, and Cognizant. The department emphasizes real-time learning and specialized training in software design, equipping students with the skills needed to excel in a competitive job market

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Glimpses of the Conference

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Keynote Speakers

Technical Session – I

Mr. Amit Ojha

Chief Technology Officer

Topic: Adaptive Emotional AI Interfaces for Hyper-Personalized Customer Engagement in Digital E-commerce

Technical Session – II

Mr. Prince Kumar

Principal Enterprise Architect

Topic: Designing Autonomous Enterprise-Scale Deep Fake Detection Architectures: Securing Financial Ecosystems Against Emerging Digital Fraud Threats

Technical Session – III

Mr. Anish Kumar Jain

Director, Software Engineering at Capital One

Topic: Integration of Explainable AI (XAI) in Credit Card Fraud Detection Systems: Enhancing Transparency in Software Engineering Solutions

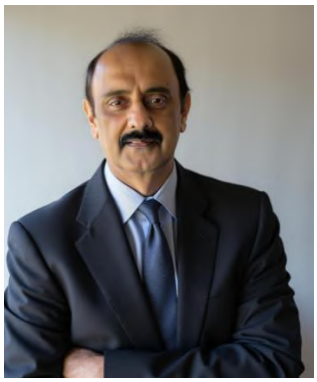
Technical Session – IV

Ms. Priti Nathani

Senior Physical therapist

Topic: Technological Integration for Coordinated Multidisciplinary Care in Home-Based Physical Therapy: Barriers, Enablers, and Patient-Centered Outcomes

Technical Session – V



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Principal Software Engineer

Topic : Meta-Learned Data Pipeline Adaptation for Continual Learning in Non-Stationary Data Streams

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Mr. Gaurav Dixit

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Mr. Nikhil Kassetty

Software Engineer

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Technical Session – VIII

Mr. Dipesh J Kashiv

Group Product Manager, Cisco

Topic : Self-Evolving AI-Driven Networks: Designing Adaptive Communication Architectures through Continual Learning Models

Technical Session – IX

Mr. Sathish Rao

Senior Engineering Consultant

Topic: Transportation Systems Management and Operations

Technical Session – X

Mr. Prakash Subramani

SAP Architect

Topic: AI-Driven Predictive Analytics and RPA Integration for End-to-End Billing Cycle Optimization

Technical Session – XI

Ms. Deepaben Bhavsar

Regulatory Affairs Manager

Topic: Ethical and Legal Implications of Using Artificial Intelligence in Regulatory Submissions and Review Processes

Technical Session – XII

Mr. Naveen Kunchakuri

Senior Machine Learning Engineer

Topic: Secure AI Integration with MLOps

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Data Specialist.

Mr. Swapnil Ghate
Principal Product Manager

Mr. Saravanan Thirumazhisai Prabhagaran
Principal Architect

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Group Product Manager, Cisco

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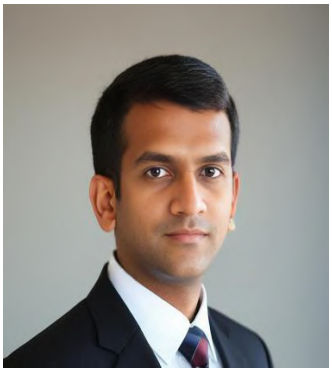

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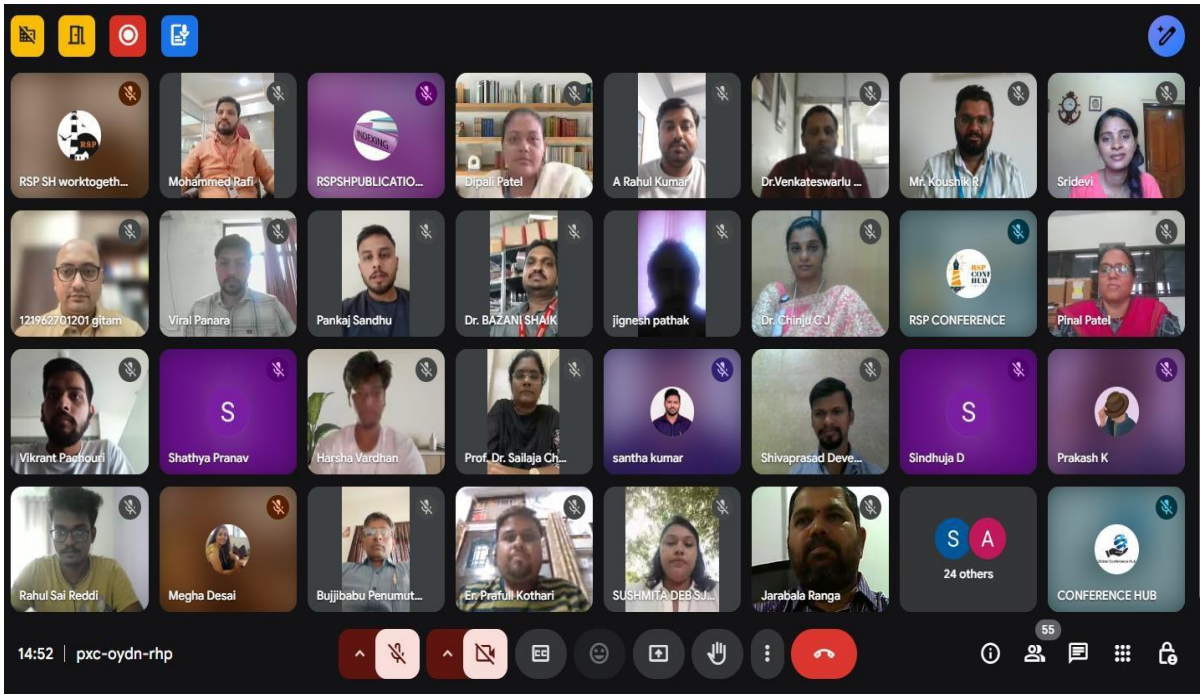
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CONFERENCE HUB
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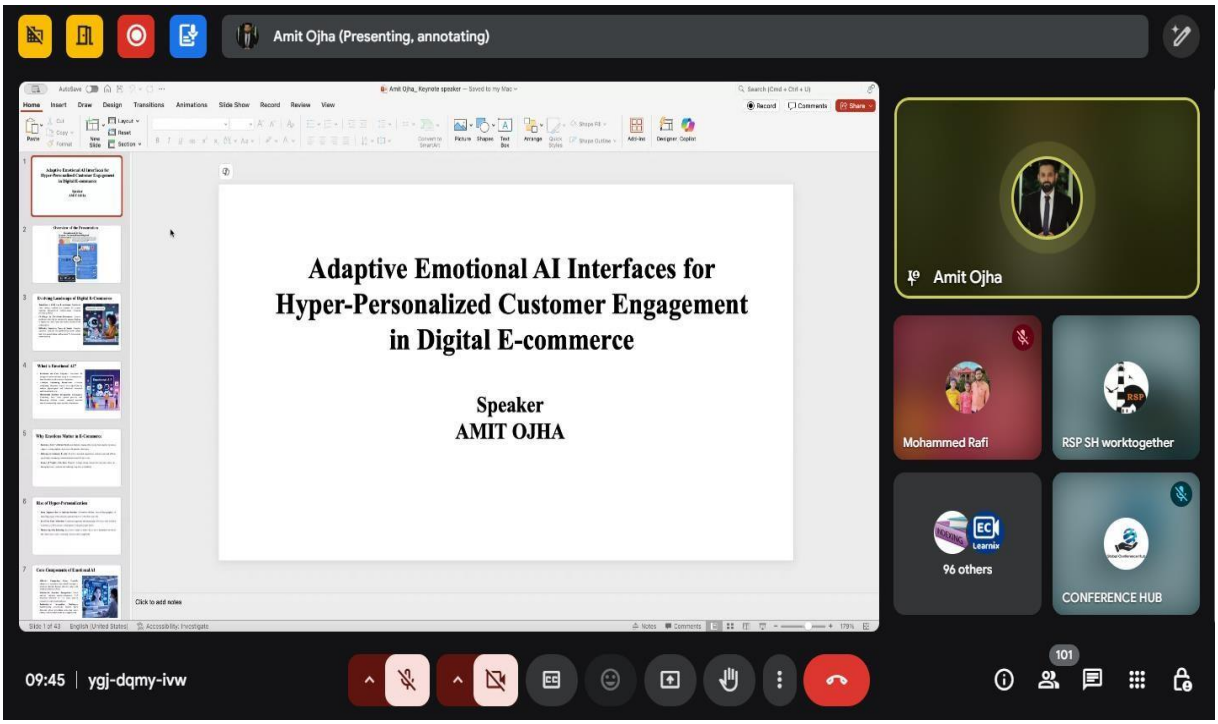
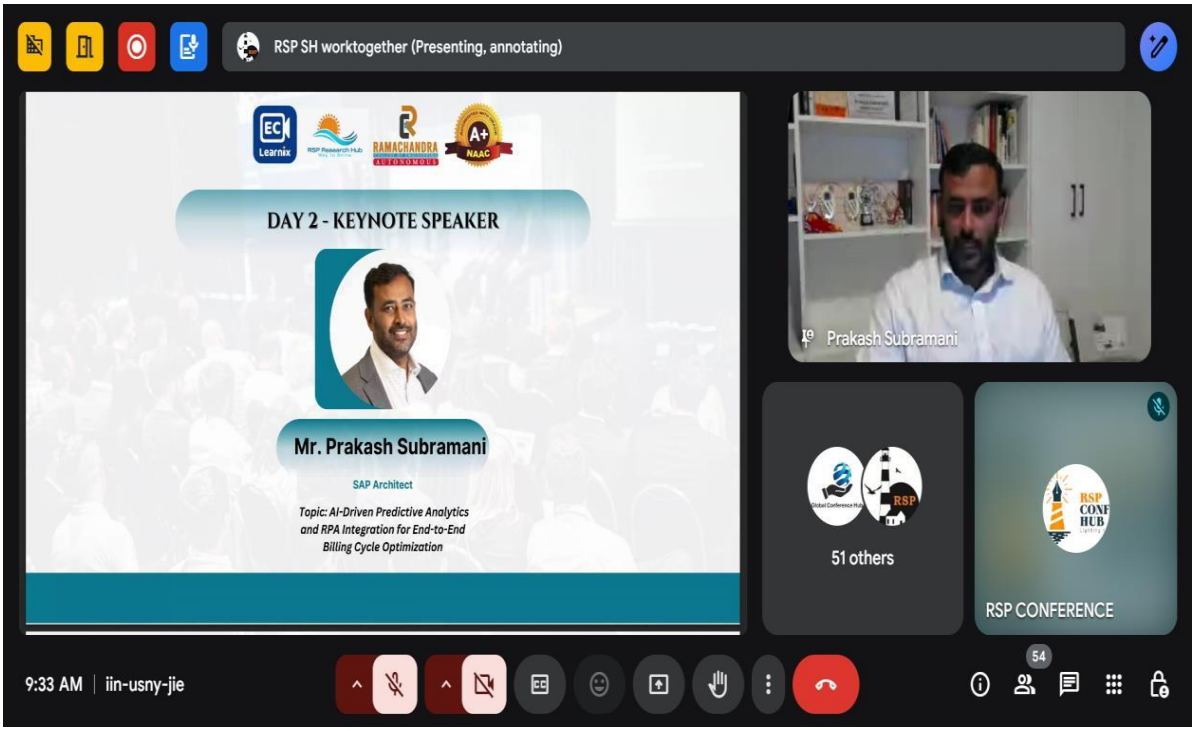
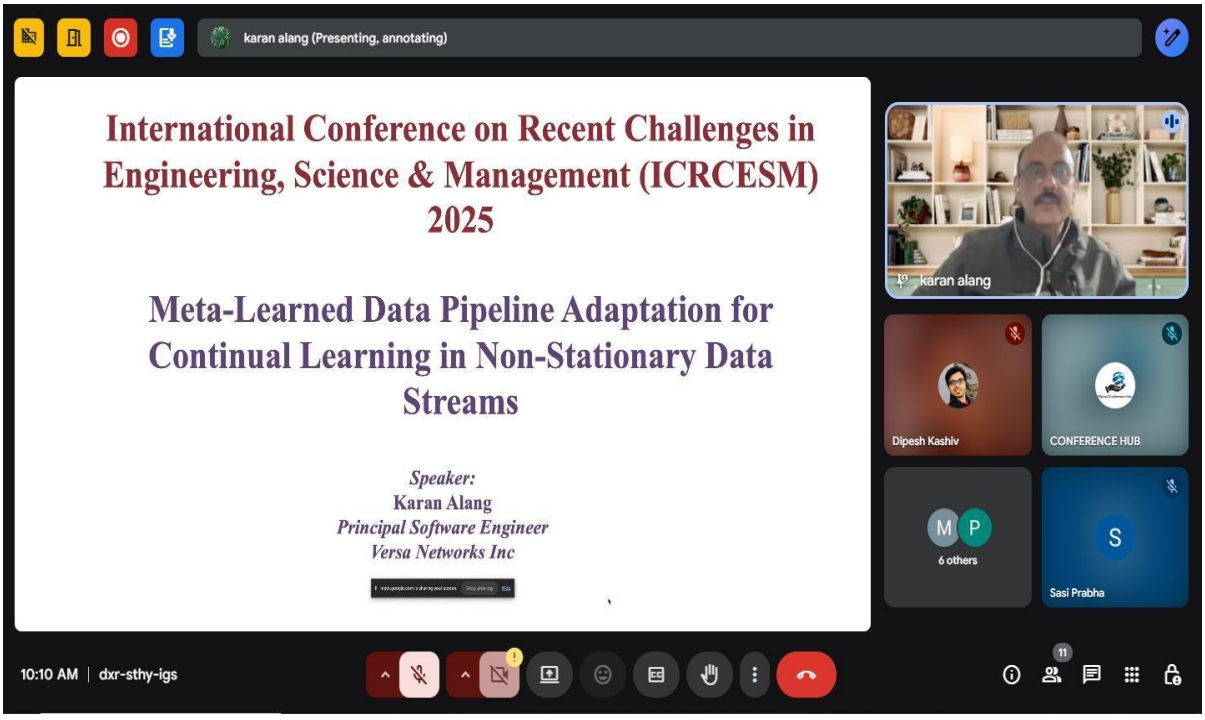

Amit Ojha (Presenting, annotating)
Adaptive Emotional AI Interfaces for Hyper-Personalized Customer Engagement in Digital E-commerce
Speaker
AMIT OJHA
Amit Ojha
Mohammed Rafi
RSP SH worktogether
96 others
CONFERENCE HUB
09:45 | ygj-dqmy-ivw
101

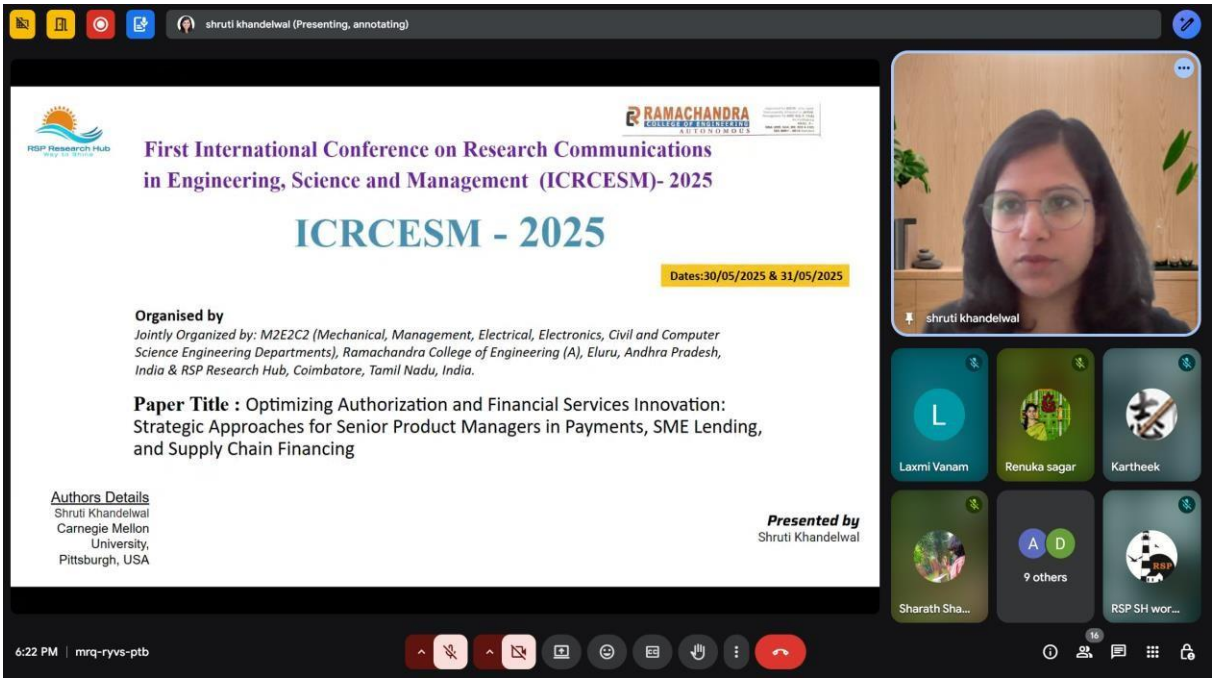

RSP SH worktogether (Presenting, annotating)
DAY 2 - KEYNOTE SPEAKER
Mr. Prakash Subramani
SAP Architect
Topic: AI-Driven Predictive Analytics and RPA Integration for End-to-End Billing Cycle Optimization
Prakash Subramani
51 others
RSP CONFERENCE
9:33 AM | iin-usny-jie
54

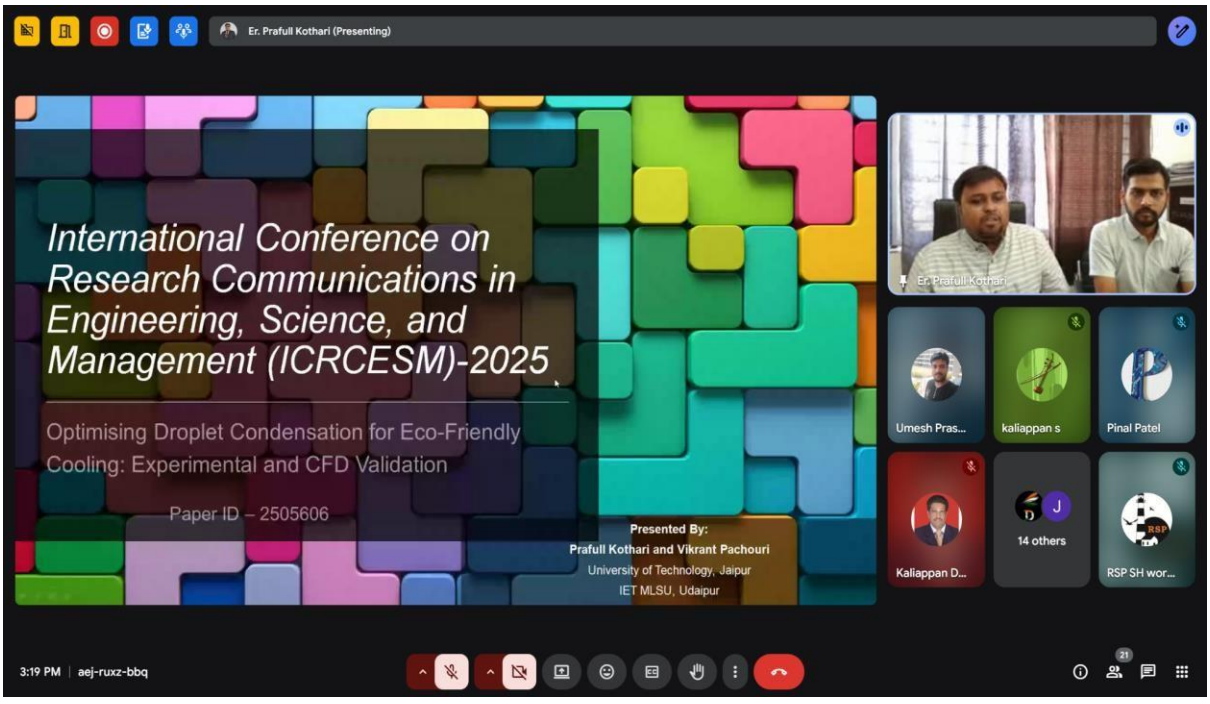
Keynote Speakers Presentation – ICRCESM - 2025


Nikhil Kassetty (Presenting, annotating)
Leveraging Serverless Multi-Cloud Architectures for AI-Driven Real-Time Fraud Detection in FinTech
Speaker
Nikhil Kassetty
Nikhil Kassetty
Viral Panara
Bhavani Koona
Ganesh Kondhalkar
CONFERENCE HUB
6 others
RSP SH worktogether
2:01 PM | upt-tzzf-ncf

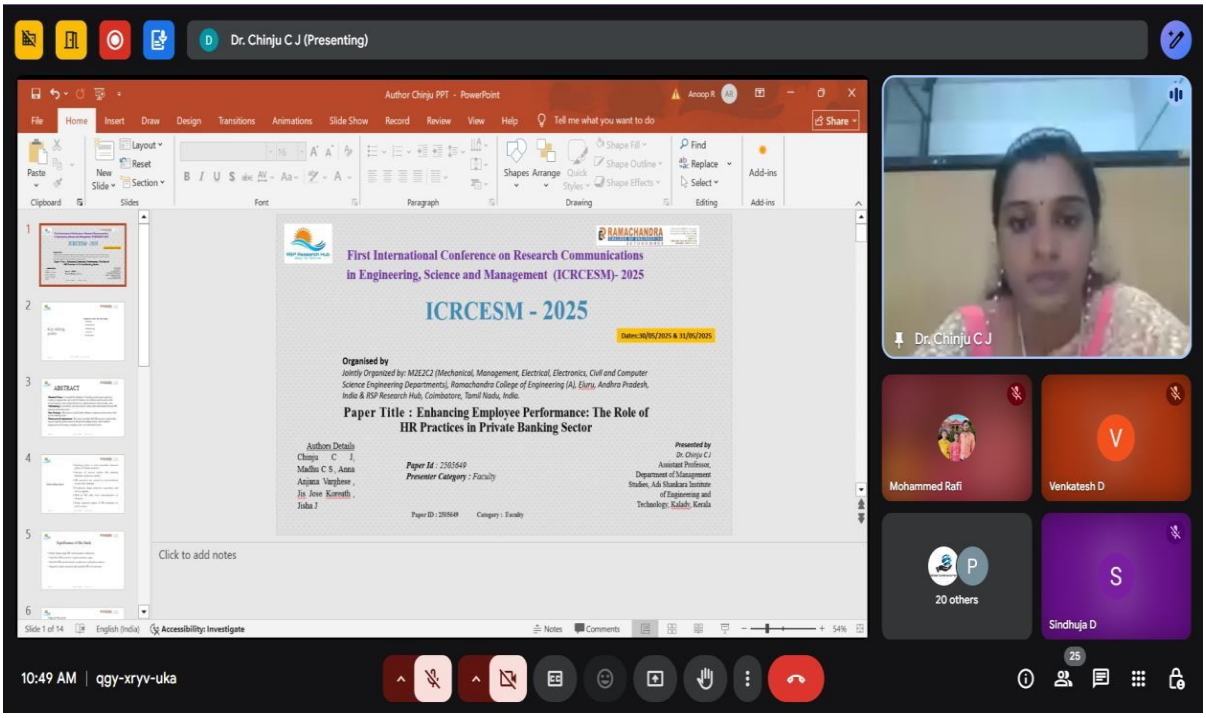

karan alang (Presenting, annotating)
International Conference on Recent Challenges in Engineering, Science & Management (ICRCESM) 2025
Meta-Learned Data Pipeline Adaptation for Continual Learning in Non-Stationary Data Streams
Speaker:
Karan Alang
Principal Software Engineer
Versa Networks Inc
karan alang
Dipesh Kashiv
CONFERENCE HUB
6 others
Sasi Prabha
10:10 AM | dxr-sthy-igs

A Sample Presentation – ICRCESM - 2025



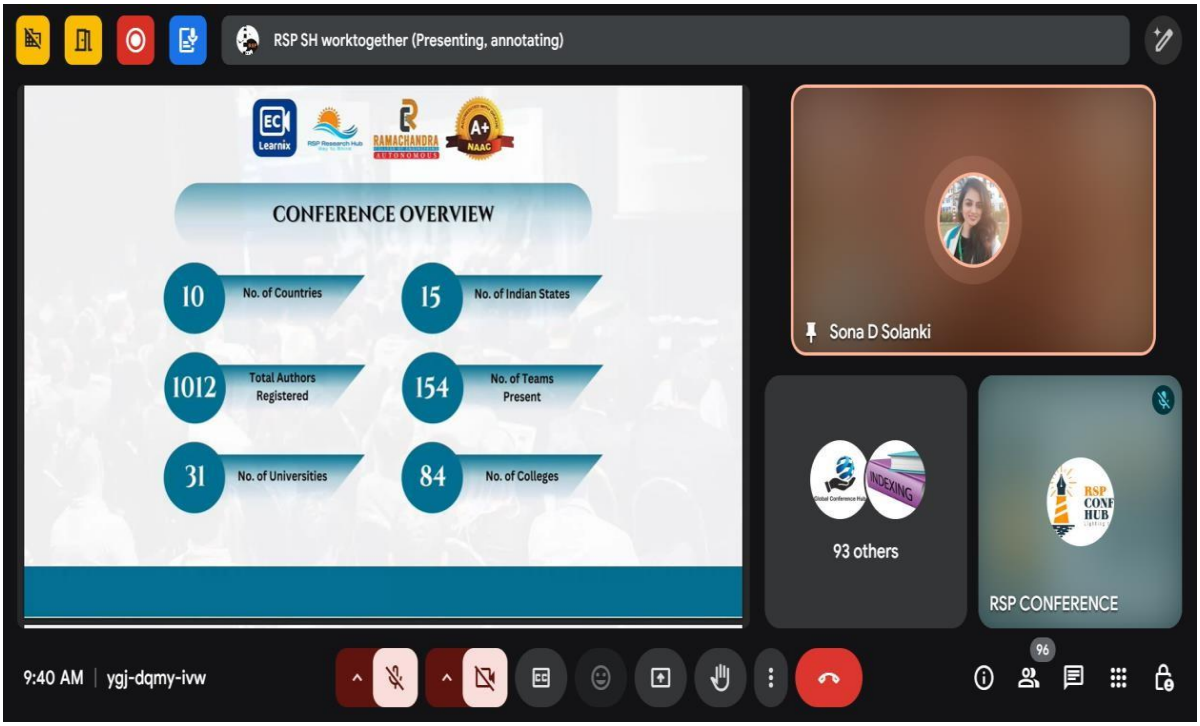



Jayavelan J (Presenting, annotating)
First International Conference on Research Communications in Engineering, Science and Management (ICRCESM)- 2025
ICRCESM - 2025
Dates:30/05/2025 & 31/05/2025
Organised by
Optimizing Enterprise Intelligence: A Strategic Framework for Integrating Salesforce with Modern Cloud-Based Data Warehouses for Real-Time Unified Analytics
Authors Detail
Jayavelan Jayabalan
Devanand Ramachandran
Presented by
Jayavelan Jayabalan
University of Madras
Jayavelan J
VaniSree Ma...
Khaja Basee...
Devanand R...
CONFEREN...
4 others
RSP SH wor...
11:03 PM | mrq-ryvs-ptb

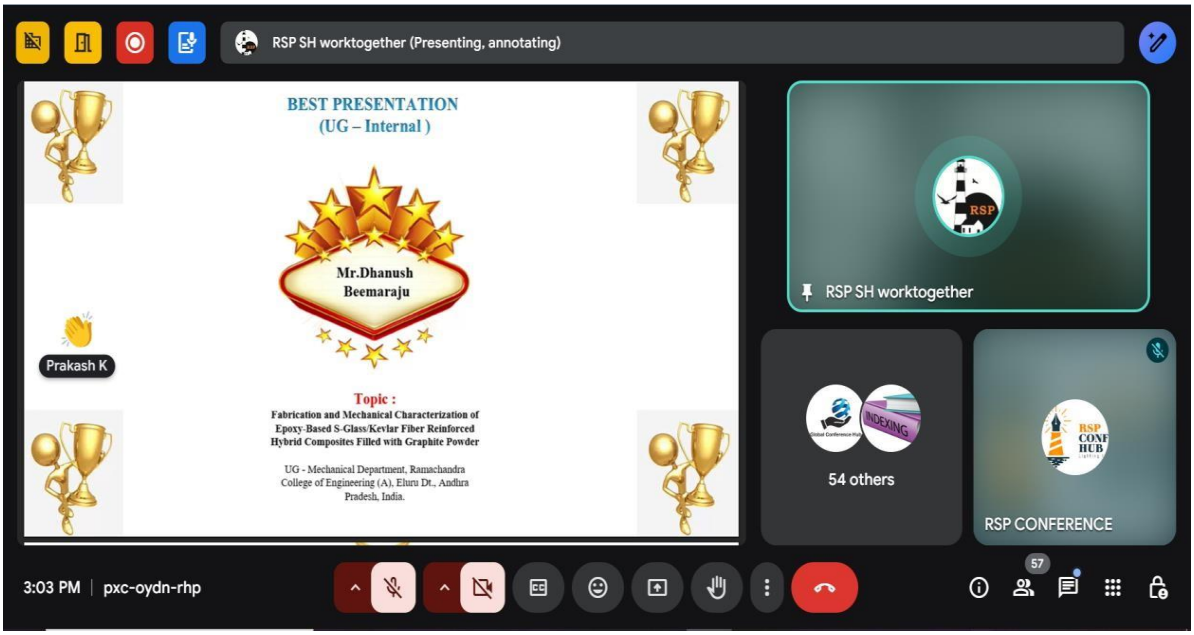

Dr. Chinju C J (Presenting)
First International Conference on Research Communications in Engineering, Science and Management (ICRCESM)- 2025
ICRCESM - 2025
Paper Title : Enhancing Employee Performance: The Role of HR Practices in Private Banking Sector
Dr. Chinju C J
Mohammed Rafi
Venkatesh D
20 others
Sindhuja D
10:49 AM | qgy-xryv-uka

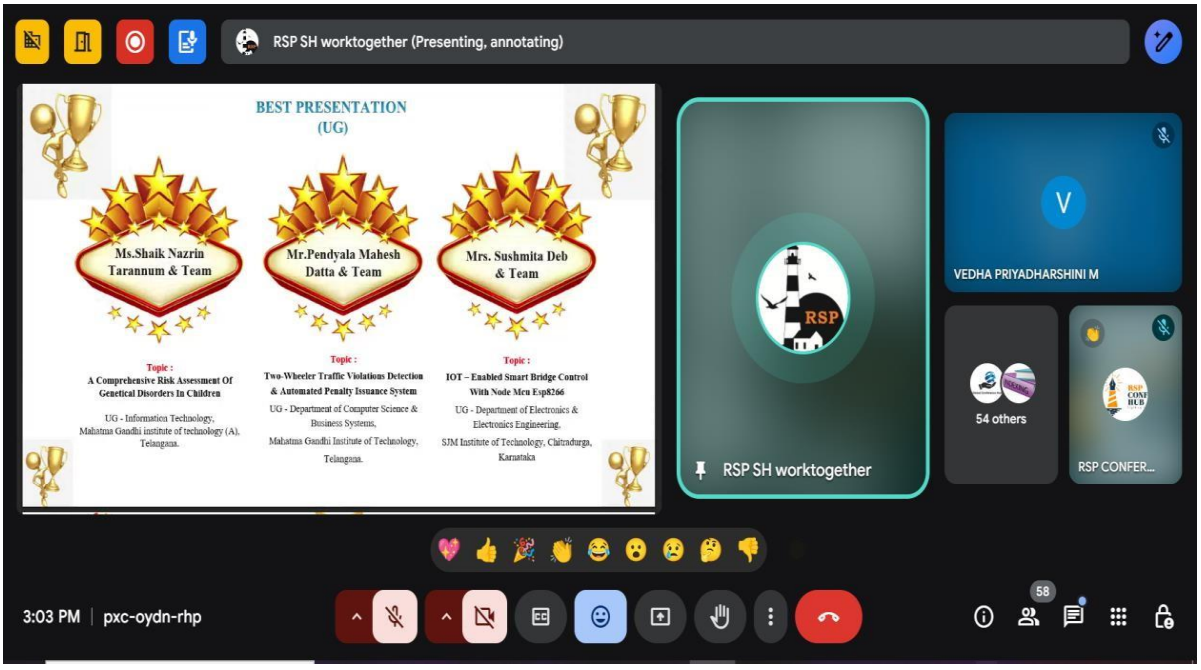
Valedictory – ICRCESM - 2025

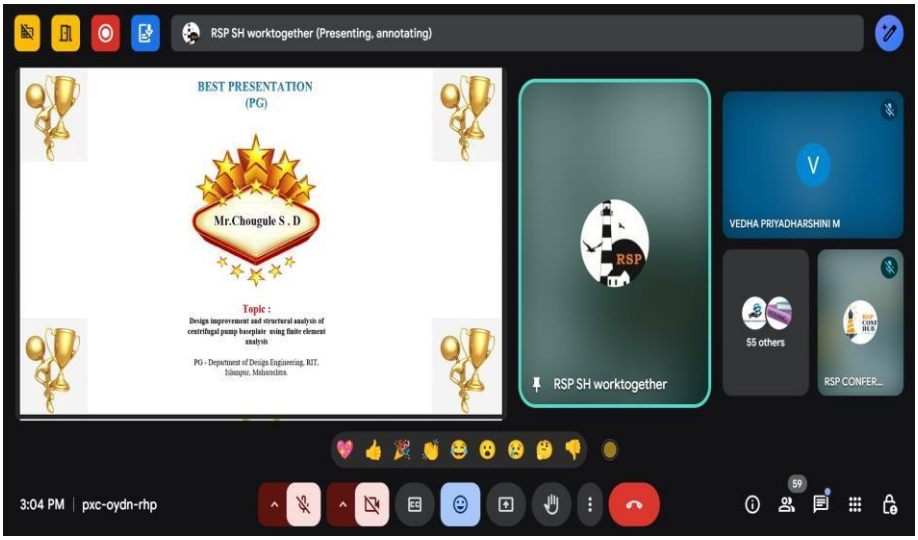

RSP SH worktogether (Presenting, annotating)
ARTICLE & ACCEPTANCE SUMMARY
ACCEPTANCE RATE = 59.9%
NO.OF ARTICLES REGISTERED:257
NO.OF ARTICLES ACCEPTED:154
Sona D Sola...
Mohammed ...
MURALIDHA...
Dean Acade...
91 others
RSP CONFE...
9:40 AM | ygj-dqmy-ivw

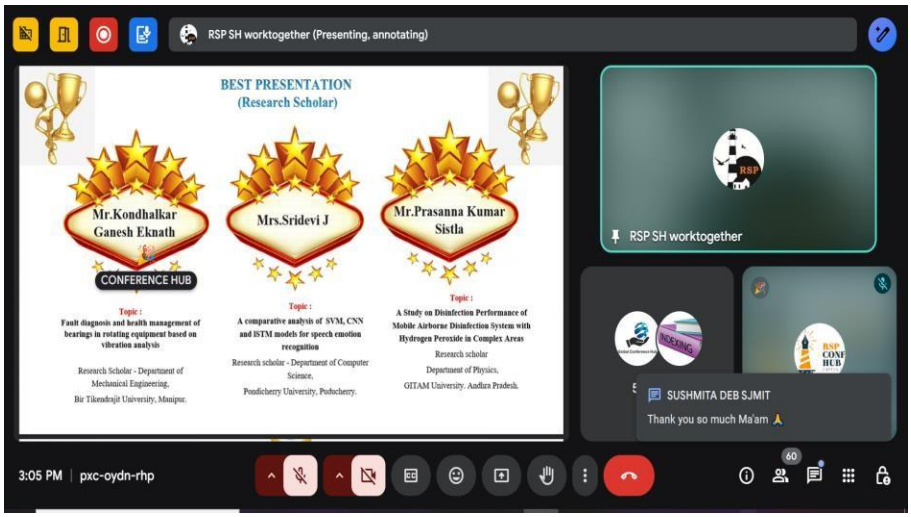

RSP SH worktogether (Presenting, annotating)
CONFERENCE OVERVIEW
10 No. of Countries
15 No. of Indian States
1012 Total Authors Registered
154 No. of Teams Present
31 No. of Universities
84 No. of Colleges
Sona D Solanki
93 others
RSP CONFERENCE
9:40 AM | ygj-dqmy-ivw

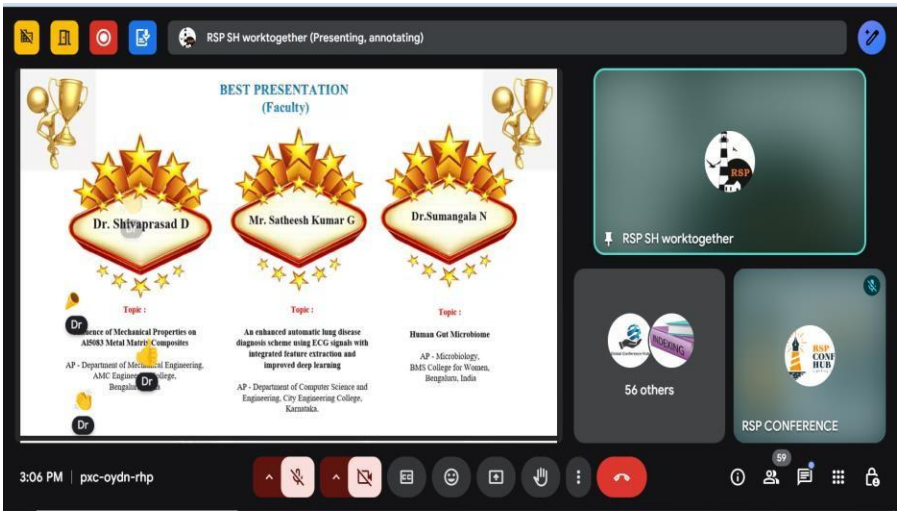
Best Presentation of ICRCESM- 2025






RSP SH worktogether (Presenting, annotating)
BEST PRESENTATION
(PG)
Mr.Chougule S . D
Topic :
Design improvement and structural analysis of centrifugal pump baseplate using finite element analysis
PG - Department of Design Engineering, RIT, Islampur, Maharashtra.
RSP SH worktogether
VEDHA PRIYADHARSHINI M
55 others
RSP CONFER...
3:04 PM | pxc-oydn-rhp


RSP SH worktogether (Presenting, annotating)
BEST PRESENTATION
(Research Scholar)
Mr.Kondhalkar Ganesh Eknath
CONFERENCE HUB
Topic :
Fault diagnosis and health management of bearings in rotating equipment based on vibration analysis
Research Scholar - Department of Mechanical Engineering,
Bir Tikendrajit University, Manipur.
Mrs.Sridevi J
Topic :
A comparative analysis of SVM, CNN and ISTM models for speech emotion recognition
Research scholar - Department of Computer Science,
Pondicherry University, Puducherry.
Mr.Prasanna Kumar Sistla
Topic :
A Study on Disinfection Performance of Mobile Airborne Disinfection System with Hydrogen Peroxide in Complex Areas
Research scholar
Department of Physics,
GITAM University. Andhra Pradesh.
RSP SH worktogether
SUSHMITA DEB SJMIT
Thank you so much Ma'am
3:05 PM | pxc-oydn-rhp


RSP SH worktogether (Presenting, annotating)
BEST PRESENTATION
(Faculty)
Dr. Shivaprasad D
Topic :
Dr
Dr
Dr
AP - Department of Mechanical Engineering,
Mr. Satheesh Kumar G
Topic :
An enhanced automatic lung disease diagnosis scheme using ECG signals with integrated feature extraction and improved deep learning
AP - Department of Computer Science and Engineering, City Engineering College, Karnataka.
Dr.Sumangala N
Topic :
Human Gut Microbiome
AP - Microbiology,
BMS College for Women, Bengaluru, India
RSP SH worktogether
56 others
RSP CONFERENCE
3:06 PM | pxc-oydn-rhp

INDEX

ICRCESMAP001

Contribution Title Exploring Algorithmic Paradigms in Message Classification: Insights from the Enron Email Dataset

Noor Ali Saeejil[1], Hussain A. Younis[2], Israa M. Hayder[3], Muthmainnah[4]

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[3]Department of Computer Systems Techniques, Qurna Technical Institute, Southern Technical University, Basrah 61016, Iraq

[4]Universitas Al Asyariah Mandar Sulawesi Barat Indonesia

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ABSTRACT

This research focuses on message classification, specifically distinguishing between legitimate and spam messages. The paper emphasizes the importance of preprocessing textual data using vectorizers, introducing Count Vectorizer and TFIDF Vectorizer for this purpose. These vectorizers convert text into numerical representations. The dataset is split into training and testing data to facilitate model development and evaluation. Python, along with libraries such as scikit-learn and nltk, is used for model implementation, providing machine learning and natural language processing capabilities. Various algorithms, including decision trees, random forests, support vector machines, logistic regression, and neural networks, are employed, each initialized with specific parameters for optimization. Data is sourced from the Enron email dataset on Kaggle, comprising around 500,000 emails linked to Enron's investigation by the Federal Energy Regulatory Commission. The research objectives include training models with selected algorithms to accurately categorize messages and evaluating their performance using metrics like accuracy, precision, recall, and F1 score. Findings reveal weak positive correlations between message characteristics and the target variable. The developed models show promising performance, emphasizing the need to consider diverse factors and techniques in message classification. The study contributes insights into the relationships between message characteristics and classification accuracy, aiding the development of effective models across various domains.

Keywords: Message Classification, Spam Detection, Algorithms, Decision Trees, Random Forests, Support Vector Machines, Logistic Regression, Neura

ICRCESMAP002

Integration of Cloud Computing with Artificial Intelligence in Education Process

Dr. Ali Said Al-Matari[1], Dr. Abd Ghofur[2], Dr. Andi Asrifan[3], Dr. Muthmainnah[4], Eva Nikmatul Rabbianty[5], Wasin Albalushi[6], Saliha Alsaadi[7]

[1]A'Sharqiyah University

[2]State Islamic Institute of Madura, Indonesia

[3]Professor (Assistant) at Universitas Muhammadiyah SidenrengRappang

[4]Assistant Professor, Universitas Al Asyariah Mandar in West Sulawesi, Indonesia

[5]Chief of language unit at iain madura Indonesia

[6]A'Sharqiyah University, Oman

[7]Oman, A'Sharqiyah University, Salma AI Qaab Al- Balushi, Ministry of education, Oman

ABSTRACT

This study aimed to identify the integration of cloud computing with artificial intelligence in the education process, where the researchers touched on showing the different definitions of the concept of artificial intelligence in the learning and teaching process, and the basics of computing artificial intelligence and the cloud, how does cloud computing change schools? And why is artificial intelligence important in cloud computing? The benefits of using artificial intelligence in cloud computing, and the future of artificial intelligence in cloud computing.

Keywords: Cloud Computing, Artificial Intelligence, Education Process.

ICRCESMAP003

Virtual Platform as an Effective Means of Teacher Training Process

Alesa Durgaryan

ESL ESP EFL teacher trainer, pedagogical expert, Armenian State Pedagogical University after Kh. Abovyan, Chair of Pedagogy, Armenia

Email ID: alesadurgaryan@gmail.com

ABSTRACT

Today, the modern information field and its scope is becoming more and more widespread not only in everyday life, but also in the scientific and educational system. Today, a completely different new field has its unique place and influence in teacher training: media literacy, which allows the process of teacher training to be transferred from a face-to-face platform to an online platform, changing not only the forms and process of its organization, but also the role and significance of training. in action. By being trained from this point of view, the teacher acquires not only new theoretical and practical knowledge, but also skills and abilities to use modern technologies. In recent years, online learning and the implementation of teacher training through it have started to be used more and more widely. Online trainings represent the implementation of the training process using an online platform and appropriate tools and materials. Among the most encountered problems in this process are:

- Full development of the training process,
- Choosing the right online training tools and using them correctly and appropriately
- The correct choice of forms of organization of the training process.

In order to obtain a more prominent picture of the problems of teacher training through the tools of media literacy, we have carried out research works. In order to find out the role of the training process, we conducted surveys among teachers teaching not only in elementary, but also in middle and high schools. The purpose of the research was to find out the application of media literacy and its importance within the framework of the organization of the teacher training process. In order to carry out the research, observation and survey methods were used. About 50 teachers teaching different subjects took part in the survey. The research was conducted in two phases. In the first phase, a number of trainings conducted on an online platform were observed and studied. Through viewing, we got the opportunity to watch and participate in a number of online trainings. For the

online trainings that we followed and did not participate in, we did surveys. We have tried to present the results recorded as a result of the survey below through statistical analysis. As we have already mentioned, teachers from various educational institutions of the educational system participated in the survey, whose participation index is presented in the form of a report: middle school teachers, especially foreign language teachers, were most active on the online platform, which was due to the knowledge of a foreign language and a wide range of online trainings conducted by foreign countries and organizations, and on the other hand, to a number of activities in this field. As a result, the effectiveness of online teacher training depends on a number of factors, including:

- Introducing theoretical approaches to educational institutions through online media tools.
- Practice that allows teachers to use different media tools to make their lessons richer and more meaningful.
- Online learning offers effective ways for teachers. A number of studies show that online courses have become more widespread, providing the flexibility and efficiency through which teachers can access new learning platforms.
- Improving skills and knowledge through multiple online media tools, workshops, seminars, etc.

The modernization of national education requires not only the active provision of educational institutions with technology, but also fundamental changes in educational priorities, pedagogical emphasis, educational construction approaches, the paradigm in general and individual educational trajectories in particular.

Keywords: Virtual Platform, Teacher Training, Training Process, Effectiveness, Online Training.

ICRCESMAP004

Collaboration between Teaching English and Renewable Energy: Fostering Sustainable Development and Language Proficiency

Ghada Tosson

Head of English Dept. at Beni-Suef Technological University

Email ID: ghada_tosson@yahoo.com

ABSTRACT

In today's interconnected world, the intersection of education and sustainable development has gained significant attention. This abstract explores the potential collaboration between teaching English as a second language (ESL) and renewable energy education, with the goal of fostering sustainable development goals and enhancing language proficiency simultaneously. Renewable energy has emerged as a crucial solution to address the challenges of climate change and transition to a sustainable future. Education plays a vital role in equipping individuals with the knowledge and skills necessary to embrace renewable energy technologies and practices. Meanwhile, English language proficiency has become a global necessity due to its role as a lingua franca in academia, diplomacy, and the professional world. This abstract proposes that a collaboration between ESL and renewable energy education can lead to numerous benefits. By integrating renewable energy topics into ESL curricula, students can gain an interdisciplinary perspective on sustainable development, developing an understanding of the environmental, social, and economic implications of renewable energy technologies. This can foster a sense of global citizenship and responsibility among students. Incorporating renewable energy concepts into ESL education can also enhance language proficiency by providing students with contextualized learning experiences that require critical thinking, problem-solving, and communication skills. This can help students develop a deeper understanding of the language and its applications in real-world scenarios. Overall, the collaboration between ESL and renewable energy education has the potential to promote sustainable development and language proficiency, equipping students with the knowledge and skills necessary to address the challenges of the 21st century. Incorporating renewable energy concepts into ESL instruction can significantly improve language acquisition and proficiency. By integrating relevant terminology, debates, and discussions into the classroom, students are provided with engaging and meaningful content, which in turn enhances their motivation and participation. Through expressing opinions, debating

renewable energy policies, and collaborating on group projects related to sustainable energy solutions, students can develop their language skills in a practical and meaningful way. Moreover, collaboration between ESL and renewable energy education can create opportunities for authentic language use. Field trips to renewable energy installations, lectures from industry experts, and interactive projects allow students to practice English in real-life contexts, thereby enhancing their language fluency and cultural understanding. This experiential learning approach fosters a deeper appreciation of the language and its practical applications, while promoting cross-cultural understanding and exchange.

ICRCESMAP005

Technology Transformation to Assess the Effect of Cap Cut Application on Student Motivation and Academic Achievement in Persuasive Text Production

Siti Fatimah[1], Chuduriah Sahabuddin[2], Muthmainnah[3]

[1]Student, Indonesian Language Study Program Universitas Al Asyariah Mandar Sulawesi Barat, Indonesia

[2,3]Assistant Professor, Indonesian Language Study Program Universitas Al Asyariah Mandar Sulawesi Barat, Indonesia

Email ID: fatimahhh524@gmail.com[1], chuduriahsahabuddin67@gmail.com[2], muthmainnahunasman@gmail.com[3]

ABSTRACT

To determine how the CapCut app affected the interest and performance when writing persuasive essays, this study will employ a mixed-methods approach. The research used a quantitative experimental design with a control group, a post-test, and a pre-test. Using the Random Sampling Technique, a total of 48 individuals were divided into two classes: control and experiment. Learning outcomes, answers, and participant activities are considered by research tools such as questionnaires, tests, and observations. Descriptive statistics, as well as tests for normality and homogeneity, are part of data analysis. Both educators and students would benefit from a deeper understanding of how to effectively use various forms of technology in the classroom. One possible use of the CupCut app is to have students produce persuasive writings in an effort to inspire them to write better and more imaginatively.

Keywords: Technology, CapCut, Motivation, Academic Achievement and Writing.

ICRCESMAP006

The Advent of Artificial Intelligence: Threats, Lessons, and Future Directions in Education

Randy A. Tudy

Deputy Director, Publication Unit, University of Southeastern Philippines

Email ID: ratudy@usep.edu.ph

ABSTRACT

In July of 2023, the UN The U.N. Security Council for the first time held a session on the threat that artificial intelligence poses to international peace and stability. The Secretary General António Guterres called for a global watchdog to oversee a new technology that has raised at least as many fears as hopes. In education, there are concerns about academic integrity, especially when students use or even depend on these AI tools. While the debate on this matter continues to evolve, this paper contributes by presenting the threats, lessons, and future directions in Education in the era of Artificial Intelligence. In conclusion I will expound on the need to come up with a clear-cut policy on the use and acceptance of AI generated outputs, particularly on academic requirements.

Keywords: Artificial Intelligence, Academic Integrity, Education.

ICRCESMAP007

Knowledge in Green Economy and Urban Green Innovation Spaces

José G. Vargas-Hernández[1], Dra. Teresa Irina Salazar Echeagaray[2], M. C. Omar C. Vargas-González[3]

[1]Research Professor, Postgraduate and Research Division, Tecnológico Nacional de México, ITSF

[2]Universidad Autónoma de Sinaloa, México

[3]Instituto Tecnológico de México, Campus Cd. Guzmán, Cd. Guzmán, Jalisco 49000 México

Email ID: jose.vargas@zapopan.tecmm.edu.mx[1], jvargas2006@gmail.com[2], omar.vg@cdguzman.tecnm.mx[3]

ORC ID: https://orcid.org/0000-0003-0938-4197[1], https://orcid.org/0000-0001-8785-6300[2], https://orcid.org/0000-0002-6089-956X[3]

ABSTRACT

This study aims to analyze the implications of green knowledge and technology in organizational green innovation, urban green innovation, and green roofs. The analysis is supported by the assumption that green sharing knowledge and technology is basic to organizational green innovation and urban green innovation areas practices, operations, and activities. The methods employed are based on the analytical-reflective and descriptive supported with the review of theoretical and empirical literature. The analysis concludes that green knowledge sharing is relevant to create and develop the green technology with positive implications for organizational green innovation, urban green innovation areas and green roofs.

Keywords: Organizational Green Innovation, Green Knowledge, Green Technology, Green Urban Areas.

ICRCESMAP008

A Study of the Histories of People for Gerontology through Steps of Artificial Intelligence in Text Book

Ryo Takahashi

Professor, American University of Sovereign Nations

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ABSTRACT

Artificial intelligence (AI) has a big potential to help tackle educational system, especially during pandemic it has been issued for worldwide people's interests in many reasons. Particularly, education has very important issue for all people in the world. Nowadays, Al has the power to improve teaching and learning methods throughout all age from birth through death even before death and life after death. Consciousness is the most important to improve ability than memorization. In order to improve consciousness, there are among four cycling to grow such as Layered knowledge 層(Sou)知(Chi), round 環(Wa), practice for a lifetime 一生稽古(Isshoukeiko), and unnatural wonder 不自然(Fushigen)の(no)妙(Myou). These are AI goals to seek wisdom through experience. We can understand gradually meaning of Master 名人(Meijin), Expert 達人(Tatsujin), Ironman 鉄人(Tetsujin): Creation and evolution of intelligence through time and eternity.

Keywords: Gerontology, Artificial Intelligence, Education, Consciousness.

ICRCESMAP009

A Methodical Approach in Warehouse Management Systems (WMS) and Implementations

Natesan Andiyappillai[1], Dr. T. Prakash[2]

[1]WMS Solution Expert, CEVA Logistics US Inc, 15350 Vickery Dr, Houston, TX 77032, USA.

[2]Professor, Department of Mechatronics Engineering, SNS College of Technology, Coimbatore, Tamil Nadu, India.

Email ID: natesan.andiyappillai@gmail.com[1]

ABSTRACT

In the last few decades or so, many organizations have realized the importance of Logistics and Supply Chain Systems to manage their business entities due to evolving and dynamic business environment and subsequently implemented those systems as well. There are many IT systems available in the market and this research article focuses on the Warehouse Management System (WMS), one of the very crucial IT systems in Logistics and Supply Chain channel. As it is important for an organization to implement WMS for their Logistics business to manage their inventory while meeting the customer requirements, it is also important to use right methodology to make the implementation a successful one for all the stakeholders involved in the business. Hence, a case study has been conducted in a leading Logistics and Supply Chain company to study and evaluate their approach in WMS implementations and also provide recommendations for further streamlining the implementation strategy based on the study.

Keywords: Warehouse Management Systems (WMS), Logistics and Supply Chain Systems.

ICRCESMAP010

Precision Agriculture through Smart Irrigation using IoT and Hybrid Machine Learning

Shailesh Murugaa B[1], Jaya Atithya K[2], Mohammad Ibrahim M[3], Dr. P. Saravanan[4]

[1,2,3]UG Scholar, Dept. of ECE, Sri Sairam Institute of Technology, Chennai, Tamil Nadu, India

[4]Associate Professor, Dept. of ECE, Sri Sairam Institute of Technology, Chennai, Tamil Nadu, India

Email ID: shaileshmurugaab@gmail.com[1], sit22ec007@sairamtap.edu.in[2], sit22ec113@sairamtap.edu.in[3], saravanan.ece@sairamit.edu.in[4]

ABSTRACT

Optimized water management in agriculture is a critical issue, especially in water-scarce regions. The paper introduces an IoT-based Automated Irrigation System that utilizes real-time sensor feedback, machine learning, and weather forecasting to manage water efficiently. The system utilizes Node-RED and HiveMQ(MQTT) for convenient communication and control, employing ESP8266 microcontrollers to interface with soil moisture, temperature, and humidity sensors. Moreover, external weather data is retrieved through the OpenWeather API to enhance irrigation scheduling accuracy. The machine learning model trained to predict the irrigation need based on environmental and sensor inputs allows the system to automate motor operation with minimal human intervention. The model learns and adapts continuously to changing climate patterns and soil types, thus improving reliability and efficiency. This method not only saves water but also aids in sustainable agriculture. The system has been proven in a laboratory setting with encouraging results, showing that it can be scaled up for deployment in smart farming.

Keywords: Smart Irrigation, IoT in Agriculture, Hybrid Machine Learning, Real-Time Monitoring, Sustainable Farming, Precision Agriculture.

ICRCESMAP011

Cryptographic Algorithms and Protocols: Evolution and Future Trend

Tejesh Raju Peruri[1], Rajesh Jujjuvarapu[2], Rishi Macha[3], Dinesh Balusu[4], Hari Nagendra Nerusu[5]

[1,2,3,4,5] UG, Cyber Security, Ramachandra college Engineering, Eluru, Andhra Pradesh

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ABSTRACT

This chapter provides a thorough analysis of cryptographic protocols and algorithms, tracing their development from antiquated to contemporary approaches and predicting emerging developments. It starts with some basic definitions and emphasizes how cryptography uses mathematical operations to encrypt and decrypt data in order to guarantee data secrecy, integrity, and validity. The historical progression demonstrates how the development of symmetric key algorithms (like DES, AES) and asymmetric key algorithms (like RSA, ECC)—driven by advances in computing power and the growing complexity of security threats—replaced simpler encryption techniques like substitution ciphers. The drawbacks of existing cryptographic systems are discussed, such as processing costs, difficulties managing keys, susceptibility to side-channel attacks, sophisticated computational attacks (such as quantum computing), and implementation errors. It responds by outlining precautionary steps that include using strong algorithms, putting strong key management procedures in place, following best practices in cryptography, and making sure that implementation is secure through code reviews and security assessments.

Keywords: Encryption, Digital Signature Algorithms, Protocols for Cryptography, Encryption and Decryption Using Symmetric and Asymmetric Keys.

ICRCESMAP012

Hybridization of Photovoltaic Arrays- Modeling, Simulation, and Performance Analysis in Mat-Lab

G. Kiran Kumar[1], O. Jahnavi[2], M. Lavanya[3], V. Charitha[4], Y. Jyothi Prakash[5], G. Meerimatha[6]

[1,2,3,4,5]UG – Electrical and Electronics Engineering, Srinivasa Ramanujan Institute of Technology, Anantapur, Andhra Pradesh

[6]Assistant Professor – Electrical and Electronics Engineering, Srinivasa Ramanujan Institute of Technology, Anantapur, Andhra Pradesh

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ABSTRACT

The usage of conventional energy sources such as fossil fuels are a major concern to the environment. The renewable energy sources surpassed all the disadvantages of them causing an evolution by reducing the greenhouse effect. Solar photovoltaic energy has made its own importance among all the renewable sources of energy because of the advantages it possesses such as import – independent, dust free, inexhaustible, very low cost of maintenance, fuel free source. In photovoltaic (PV) systems, solar irradiation is a crucial factor as it directly affects the amount of electrical energy that can be generated. PV panels convert sunlight into electricity, and their efficiency depends on the intensity and angle of the incident sunlight. Factors such as geographical location, time of year, weather conditions, and the orientation and tilt of the solar panels influence the amount of solar irradiation received, thereby impacting the overall performance and energy output of the PV system. Hence to maintain sustainable output of PV system, the most capable reconfiguration approach is considered. Reconfiguring the array allows for improved power generation by altering the connections to minimize the impact of shading or to adapt to changing environmental conditions. The project aims to propose Series-Parallel, Total Cross Tied (TCT), Bridge Link (BL) and Honey Comb (HC), Hybrid reconfiguration techniques to maintain sustainable output in a solar PV array.

Keywords: PV Array configuration, Solar Irradiation, hybrid configuration, maximum output power, HC, BL, TCT, BZ.

ICRCESMAP013

Safeguarding Privacy in The Age of Artificial Intelligence: Legal Implications and Challenges

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ABSTRACT

The “Right to Privacy” is a fundamental right safeguarded by international agreements, the Indian Constitution, various legislations, and also ratified by the Supreme Court of India. The Supreme Court, in the case of K.S. Puttaswamy v. Union of India, adjudicated that the Constitution of India safeguards the “Right to Privacy” as a fundamental right under Part III. As far as, right to privacy and artificial intelligence are concerned both are intersecting. Artificial intelligence is quick in collecting personal information, processing and using the personal data without the owner’s consent, and relies on the large database containing the sensitive personal information raises the serious threat to privacy breach. This paper delves into implications of Artificial intelligence and protecting personal data emphasizing at national and global context. The study relies on International Agreement, Reports, Treaties, Indian Legislations, rules, regulations, judicial pronouncements etc. Moreover, for a clearer and more fair presentation of the problem being studied, practical materials related to the topic shall be used. The approach adopted in this study is empirical research, involving the administration of a questionnaire to law students, professors, and advocates. Additionally, a doctrinal study will be employed to provide a theoretical framework for the findings.

Keywords: Artificial Intelligence; Data protection laws; Fundamental right; Indian Constitution; Supreme Court of India.

ICRCESMAP014

Cyber Security in the Fin-Tech Sector: Securing Digital Transactions

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ABSTRACT

FinTech industry has been growing at a tremendous pace, showing several outbursts of the technological innovation, and is further reforming the financial world, equipping it with prolific digital financial services. However, their very nature exhumed a due share of cyber threats. This section discusses the overriding importance of cybersecurity in the FinTech industry, specifically pointing out the security of digital transactions. It outlines various types of cyber threats, including phishing, malware, ransomware, DDoS attacks, and insider threats, against FinTech companies, elaborating on their probable impacts: financial loss, loss of reputation, regulatory penalties, and disruption to operations. The following threats require a multi-layer cybersecurity approach by FinTech companies, which must be backed by data encryption, 2FA, behavioural biometrics, secure APIs, and threat detection with AI. Further, the chapter proceeds with explaining the regulatory frameworks that supervise cybersecurity in the financial industry, such as the GDPR, PCI DSS, and FINRA, with much attention being aroused for compliance assurance. The chapter also provides best practices to ensure cybersecurity: zero-trust architecture, a comprehensive incident response plan, periodic audits, and inculcation of cybersecurity awareness amongst employees. Several real-world case studies involving large cybersecurity breaches in the FinTech sector will help provide insight into poor security practices and the need for eternal vigilance.

Keywords: Cylinder block, V8 engine, design, analysis, Digital Identity Management, Authentication, Access Control, Biometric Systems, Multi-Factor Authentication Security in FinTech, Digital Transaction Security, Cyber Threats in Fintech, Data Encryption in FinTech, Two-factor Authentication-2FA.

ICRCESMAP015

A Comparative Analysis of SVM, CNN and LSTM Models for Speech Emotion Recognition

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ABSTRACT

The Speech Emotion Recognition (SER) project aims to develop an intelligent system capable of recognizing human emotions from speech signals. SER plays a major role in applications such as Human-Computer Interaction (HCI), sentiment analysis and psychological research. In this project, we leverage machine learning techniques and signal processing methods to analyze speech signals and extract features that capture the emotional content, following a structured pipeline that includes data collection, pre-processing, feature extraction, model training and validation. To reduce high frequency noise and retain essential speech characteristics, a low-pass filter is applied and then Mel-Frequency Cepstral Coefficients (MFCCs) is applied to extract meaningful features from audio files, and employing machine learning models like Support Vector Machines (SVM), as well as deep learning models such as Convolutional Neural Networks (CNNs) and Long Short-Term Memory (LSTM), facilitates emotion classification. The system's objective is to accurately distinguish between different emotions like anger, sadness, happiness, and neutral states from speech signals. Moreover, the inclusion of a user-friendly interface enhances accessibility and usability, enabling seamless interaction with the system. Through experimentation and rigorous evaluation, the efficacy of the proposed approach in recognizing emotions from speech is demonstrated. The SER project holds immense potential to contribute to various domains, including HCI, mental health assessment, and affective computing, thereby augmenting our comprehension and interaction with human emotions.

Keywords: SVM, CNN, LSTM, Speech Emotion Recognition, RAVDESS.

ICRCESMAP016

A Review on EEG-Based Techniques for Early Dementia Classification Using Machine Learning Approaches

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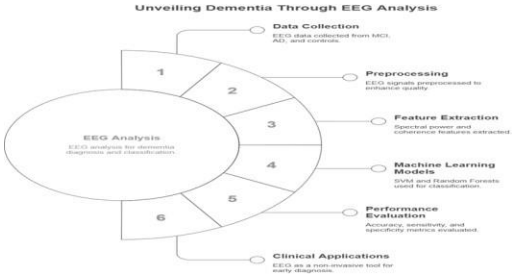
ABSTRACT

Dementia, including Mild Cognitive Impairment (MCI) and Alzheimer's Disease (AD), poses significant challenges to healthcare systems worldwide. Early and accurate diagnosis is crucial for effective intervention and management. This study investigates the use of Electroencephalogram (EEG) signals to classify different stages of dementia, focusing on MCI and AD. EEG data were collected from participants diagnosed with MCI, AD, and healthy controls. The signals were preprocessed to remove artifacts and enhance signal quality. Key features, such as spectral power and coherence, were extracted to capture the neural dynamics associated with cognitive decline. Machine learning models, including Support Vector Machines (SVM) and Random Forests, were employed to classify the conditions based on the extracted features. The performance of these models was evaluated using metrics such as accuracy, sensitivity, and specificity. Our results demonstrate that EEG-based classification can achieve high accuracy in differentiating between MCI, AD, and healthy controls. The findings highlight the potential of EEG as a non- invasive and cost-effective tool for early dementia diagnosis. This research contributes to the growing body of literature on neurophysiological biomarkers for dementia and offers insights into the development of clinical applications for EEG-based diagnostics. Future work will focus on validating these findings with larger datasets and exploring the integration of EEG with other biomarkers to enhance diagnostic accuracy.



Keywords: Electroencephalogram (EEG); Dementia, Mild Cognitive Impairment (MCI); Alzheimer's Disease (AD); Feature Extraction; Support Vector Machines (SVM).

ICRCESMAP017

Targeting PI3K/AKT/mTOR Pathway: Cytotoxicity, Flow Cytometry, and Molecular Docking in AGS Cells by Sesamin

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ABSTRACT

Background: The PI3K/AKT/mTOR pathway holds a pivotal role in controlling the growth, survival, and metabolism of cancer cells. Inhibiting the pathway presents a potentially useful approach in treating gastric cancer. Sesamin, a lignan compound purified from Sesamum indicum, has previously been reported to demonstrate multiple pharmacological activities, while its integrated molecular mechanisms on gastric cancer remain to be determined. Methods: Human gastric adenocarcinoma (AGS) cells were treated with sesamin and cytotoxicity was analysed using the MTT assay. Cell and nuclear morphology changes were examined by DAPI, DCFH-DA, and AO/EtBr staining. Flow cytometry was performed for cell cycle analysis and apoptosis quantification. Possible molecular targets were searched with GeneCards and Comparative Toxicogenomics Database (CTD). KEGG and biological pathway enrichment analysis was conducted in order to investigate molecular interactions. Molecular docking studies were conducted using central PI3K/AKT/mTOR pathway proteins and apoptosis protein. Gene expression analysis was carried out by using RT-PCR and Protein analysis was carried out by using western blot analysis. Results: Sesamin exhibited strong inhibition of AGS cell viability and provoked morphological features of apoptosis, along with increased production of reactive oxygen species (ROS). Flow cytometry revealed G0/G1 phase arrest and enhanced late apoptotic cell populations. Molecular docking demonstrated strong binding affinities of sesamin to key regulators of the PI3K/AKT/mTOR pathway. Enrichment analyses confirmed sesamin's activity in mediating cell proliferation, apoptosis, and oxidative stress response pathways. Gene expression and protein expression analysis showed the down regulation of AKT1 and mTOR in sesamin treated AGS cell line. Conclusion: Sesamin has significant anticancer effects against AGS cells by acting on the pivotal nodes of the PI3K/AKT/mTOR pathway, triggering oxidative stress and apoptosis. The finding makes sesamin a promising natural compound for the treatment of gastric cancer.

Keywords: Sesamin, Gastric cancer, AGS cell, PI3K, AKT, mTOR, Molecular Docking.

ICRCESMAP018

Evaluating The Anti-Proliferative and Apoptotic Effects of Sesamin on Skov3 Ovarian Cancer Cells: An Integrated in Vitro and in Silico Approach

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ABSTRACT

Background: Ovarian cancer is one of the most lethal gynaecological malignancies due to its resistance to apoptosis and chemotherapeutic interventions. Objective: The present study was designed to assess the cytotoxic and apoptotic activities of sesamin against SK-OV-3 ovarian cancer cells and determine its molecular mechanisms. Methods: SK-OV-3 cells were exposed to sesamin (75 µM for 48 hours) and subjected to MTT assay, immunofluorescence microscopy, flow cytometry, Western blotting, gene expression analysis, and molecular docking. Results: Sesamin treatment downregulated cell viability dose dependently and caused typical apoptotic morphological alterations such as chromatin condensation and nuclear fragmentation. Flow cytometry analysis indicated cell cycle arrest in the sub-G1 and G2/M phases, whereas Annexin V-FITC staining showed an enhanced apoptotic cell population. Western blotting and gene expression analyses proved upregulation of pro-apoptotic proteins (Bax, p53, and Caspase-9) and downregulation of anti-apoptotic proteins (Bcl-2 and Bcl-xL), showing activation of the intrinsic mitochondrial apoptotic pathway. Molecular docking study further attested to sesamin's high binding affinity with crucial apoptotic regulators, further supporting sesamin's apoptosis-inducing role. Conclusion: Sesamin has potent anti-tumour activity against SK-OV-3 ovarian cancer cells through the induction of apoptosis, suppression of cell proliferation, and interference with major survival pathways. The induction of pro-apoptotic proteins and suppression of anti-apoptotic regulators indicate that sesamin triggers the intrinsic mitochondrial apoptotic pathway, increasing susceptibility of cancer cells to apoptosis. Furthermore, molecular docking analysis confirms its robust interaction with central apoptotic regulators, further establishing its mechanism of action. Our findings offer useful information regarding the molecular impact of sesamin and highlight its potential as a viable therapeutic agent for the treatment of ovarian cancer.

Keywords: Ovarian Cancer, Sesamin, SK-OV-3, Apoptosis, Cell Arrest, Therapeutic Agent.

ICRCESMAP019

Eco-Friendly Synthesis of Selenium Nanoparticles Using Camptotheca Acuminata: Characterization and Biomedical Applications

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ABSTRACT

Selenium nanoparticles (SeNPs) were successfully synthesized via a green approach using Camptotheca acuminata fruit extract, which acted as a natural reducing and stabilizing agent. The formation of CASeNPs was confirmed through UV-Vis spectroscopy, showing a characteristic peak at ~310 nm. Fourier-transform infrared spectroscopy (FTIR) identified functional groups such as hydroxyl and carboxyl moieties, indicating the involvement of bioactive metabolites in nanoparticle stabilization. Scanning electron microscopy (SEM) revealed spherical CASeNPs with a uniform morphology and size range of 45–90 nm. The biosynthesized SeNPs exhibited strong antioxidant activity along with significant antimicrobial effects against Staphylococcus aureus (25mm), Escherichia coli (12mm), and Pseudomonas aeruginosa (14mm). Additionally, the nanoparticles demonstrated promising anticancer activity against A549 and HEK lung cancer cells, antidiabetic potential via α-amylase inhibition, and anti-inflammatory properties in vitro. These results highlight the therapeutic potential of Camptotheca acuminata-derived SeNPs and support their application in nanomedicine through a sustainable, plant-based synthesis route.

Keywords: Camptotheca acuminata, Selenium Nanoparticles (SeNPs), Antibacterial Activity, Antioxidant Activity, Anti-Inflammatory Activity, Antidiabetic Activity, Anticancer Activity.

ICRCESMAP020

Enhancing Attendance Management with CNN-Based Face Recognition: A Secure and Efficient Approach

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ABSTRACT

The Facial Recognition Attendance System is an automated solution designed to streamline attendance marking using facial recognition technology. The system employs a webcam to capture real-time images, which are processed by a Convolutional Neural Network (CNN)-based deep learning model for accurate identification. Upon successful recognition, the system records the individual's attendance along with the date and time in an Excel sheet. The application is built using the Flask web framework, providing a user-friendly interface for seamless attendance tracking without manual intervention. This system is particularly beneficial for educational institutions and organizations where efficient and accurate attendance management is essential.

Keywords: Facial Recognition, Attendance System, Convolutional Neural Network (CNN), Flask, Data Augmentation, Image Processing, Automation, Deep Learning, Python, Web-Based Application.

ICRCESMAP021

Real-Time Vehicle Detection and Classification in Traffic Videos Using Yolov8

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ABSTRACT

The Vehicle detection is important for the enhancement of transportation systems and which is efficient for traffic management, improved road safety and accurate data collection by automatically identifying and tracking vehicles on roads which enables features like traffic signal optimization, speed measurement and accident detection ultimately contributing to a smoother and safer driving experience for everyone. Here we have built a real-time project which can detect car, bus, motorcycle and truck on the basis of algorithm called YOLOV8 (You Only Look Once Version 8). It is a computer vision technique which is renowned for its real-time object detection capabilities, providing optimal balance between speed and accuracy. The model is trained using PyTorch and leverages Convolutional Neural Network (CNN) for feature extraction.

Keywords: Vehicle detection, Convolutional Neural Network, YOLOV8, PyTorch, Ultralytics, Deep Learning, Python, Feature Extraction, Image Detection.

Impact of Artificial Intelligence on Journalism

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ABSTRACT

The penetration of artificial intelligence into newsrooms, news agencies, and mass media over the last decade has given journalism a new direction. This research study attempts to take an exploratory approach in order to understand the increasing role of AI in newsroom operations, news production processes, and media technology, along with the pros and cons associated with them. While AI has been successful in developing news narration, many issues are related to its use, especially those opposing conventional journalistic values such as truth, accountability, and transparency. The increasing fuzziness between information produced by AI and that created by human beings raises much more significant issues regarding the credibility and veracity of content developed by these AI systems. This, therefore, calls for keen observation and verification to curb the resultant effects. The integrity of objective reporting is compromised. Journalists must be trained to critically evaluate the authenticity of information as they go by the codes of professionalism. Furthermore, it becomes essential that journalists receive adequate training on the use of AI tools appropriately. On the other side of the coin, influence at large in the media suggests changes in the professional way to maintain objectivity with regard to accountability and maintain a quality of journalism required within this context. For instance, it shows continual responsibility in monitoring and controlling certain ethics while at the same time reducing risks involved that the use of AI with journalism brings along.

Keywords: Journalism, Artificial Intelligence, Newsrooms, Media Environment, Journalists, Objectivity and Responsibility.

ICRCESMAP023

Advanced Design and Implementation of a CanSat for Environmental Monitoring and Data Transmission

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ABSTRACT

This paper presents the design and implementation of a CanSat system for real-time environmental monitoring and data forecasting. The CanSat prototype is built using a custom 3D-printed enclosure housing sensors such as BME280, MPU6050, and NEO-M8N, interfaced with an Arduino Nano. Data transmission is enabled through NRF modules, with the ground station comprising an NRF receiver paired with an ESP8266 microcontroller. Upon reception, the ESP8266 publishes the sensor data to an MQTT broker and concurrently logs it into an Excel sheet, while forwarding structured JSON packet sat 3-second intervals to a web-based frontend. Due to the NRF's limited payload capacity, sensor readings are batched every 3 seconds, with each JSON packet representing 1-second inter- vals. The frontend, developed using Next.js, provides interactive dashboards for visualizing real-time data, 7-day forecasts using Meta's Prophet model, and historical sensor readings based on user queries. This architecture demonstrates a robust, modular approach to environmental telemetry and predictive analytics using low-cost hardware and modern web technologies.

Keywords: CanSat, Wireless Telemetry, nRF24L01, ESP8266, MQTT, Next.js, Prophet Forecasting, Environmental Monitoring.

ICRCESMAP024

Revolutionizing Press Manufacturing with Industry 5.0

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ABSTRACT

Industry 5.0 is changing the way we think about manufacturing. While Industry 4.0 focused on automation and smart machines, Industry 5.0 brings people back into the center of the process—combining human creativity with advanced technologies like AI, robotics, and data analytics. This paper explores how these ideas are being applied in a mechanical power press manufacturing company to create a more efficient, flexible, and human-friendly production environment. The research looks at how collaborative robots (or "cobots") are working alongside skilled workers to improve quality, reduce machine downtime, and make customizations easier. We also look at tools like digital twins and intelligent systems that help engineers monitor equipment in real time, predict failures before they happen, and make better decisions on the shop floor. A key part of this study is a real-world case from a mid-sized company that builds power presses. The results show clear improvements in productivity, employee satisfaction, and energy efficiency after adopting Industry 5.0 practices. By blending human input with smart automation, the company has not only improved its output but also created a safer, more engaging workplace. This paper makes the case that Industry 5.0 isn't just about new tech—it's about building a better future for both companies and people. For mechanical press manufacturers, it's a chance to stay competitive while being more sustainable, innovative, and human-focused.

Keywords: Industry 5.0, Mechanical power press, Smart manufacturing, Sustainability.

ICRCESMAP025

Behavioural Analysis of HDPE-Infused Bubble Beams with Ceramic and Industrial Waste-Based Concrete

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ABSTRACT

This research investigates the structural behavior of conventional and modified bubble-reinforced beams incorporating ceramic waste powder, fly ash, and ground granulated blast furnace slag (GGBS). The bubble beam approach involves embedding hollow plastic spheres within the tensile region of concrete beams—an area where concrete's contribution to strength is minimal. This strategy reduces the volume of concrete required, consequently lowering the beam's self-weight. High-density polyethylene (HDPE) spheres of varying sizes and shapes were used to form cavities in the beam core. M30 grade concrete was used to cast a series of beams, some incorporating these spheres and others serving as control specimens, to compare flexural performance and weight. Additionally, the study assessed the use of ceramic waste powder as a fine aggregate substitute, replacing 15% of the sand in the mix. Fly ash and GGBS were employed as supplementary cementitious materials, replacing cement at 10%, 20%, and 30%, with each proportion maintaining a 1:1 blend of the two materials. These modifications aimed to explore environmentally sustainable alternatives to traditional concrete components. Experimental results revealed that beams with ceramic waste and partial cement replacements achieved mechanical performance on par with traditional beams. Notably, the combination of fly ash and GGBS at a 20% substitution level provided the highest compressive strength among the modified mixes. Including HDPE spheres resulted in a 4.4% reduction in overall weight without compromising flexural strength, highlighting the technique's potential for lightweight, sustainable construction.

Keywords: Bubble Beam; Ceramics Waste Powder; Flexural strength; Fly ash; GGBS.

ICRCESMAP026

Predictive Modeling of Carbon Footprint in Hybrid Structural Components Using AI and Mathematical Algorithms

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ABSTRACT

Sustainable engineering requires a precise assessment of the carbon footprint of hybrid structural elements. To evaluate the lifespan emissions of materials such as composites and fiber-reinforced polymers, this study proposes a predictive modeling approach that blends mathematical optimization with Artificial Intelligence (AI) approaches, such as neural networks and regression algorithms. The model provides precise and understandable carbon footprint estimates by examining data on material characteristics, energy use, and processing techniques. The strategy promotes more environmentally friendly material selections and structural layouts, which are consistent with international net-zero goals.

Keywords: Carbon Footprint Prediction, Hybrid Structural Components, Artificial Intelligence, Machine Learning Algorithms, Lifecycle Assessment (LCA), Sustainable Engineering, Composite Materials, Emission Modelling, Data-Driven Design, Net-Zero Construction.

ICRCESMAP027

Impact of Thermal Radiation on the Electro-Magneto-Hydrodynamic Flow of Tri-Hybrid Nanofluid Over an Expanding Surface

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ABSTRACT

Tri-hybrid nanofluids comprising distinct nanoparticles suspended in base fluid have remarkable enhancement in thermal and electrical conductivities making them suitable for in advanced thermal management in aerospace cooling systems, and biomedical thermal therapies. The present investigation focuses on the electro-magneto-hydrodynamic (EMHD) flow behavior of a tri-hybrid nanofluid composed of Titanium (Ti), Copper (Cu), and carbon nanotube (CNT) nanoparticles in water over an expanding surface through a permeable medium. The interaction of Darcy-Forchheimer inertial drag is considered in the present study. The influence of thermal radiation and internal heat generation is systematically analyzing to determine the role of thermal and flow characteristics. The mathematical model is designed for the proposed assumptions to be transformed into dimensionless form with the suitable choice of similarity rules and further, numerical technique is utilized for the solution. The results are obtained for the fixed values of the characterising parameters, considering within the proper range and the physical behavior is described graphically. A significant validation along with the convergence analysis is reported in comparison to earlier investigation.

Keywords: Tri-hybrid nanofluid; EMHD; Darcy-Forchheimer Inertial Drag; Thermal Radiation; Heat Generation; Numerical Method.

ICRCESMAP028

Experimental & Analytical Computation of Forming Force, Major & Minor Strain & its validation by FEM in SPIF of UHMWPE

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ABSTRACT

Mass production is a fundamental requirement across various industries such as automotive, medical (e.g., artificial limbs), aerospace, and household appliances. Traditionally, this has been achieved through conventional metal forming processes like press work. However, for batch production scenarios, advanced and flexible manufacturing techniques such as Incremental Sheet Forming (ISF) are more suitable, as they can significantly reduce production costs. To optimize the ISF process, it is essential to study key process parameters, including step size, tool size, feed rate, spindle speed, and wall angle, as these factors directly influence formability and the deformation behaviour particularly when working with Ultra High Molecular Weight Polyethylene (UHMWPE), which shows great potential in medical applications. This study aims to investigate critical aspects of the ISF process on UHMWPE, such as the forming limit diagram. It also involves a comparative analysis between experimental and analytical results using Finite Element Method (FEM), focusing major and minor strain values, and forming forces.

Keywords: FEM, Formability Limit Diagram, Major & Minor Strain, DOE.

ICRCESMAP029

Analysis of Closed Loop Pulsating Heat Pipe Using Python Programming

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ABSTRACT

A computer program has been developed using PYTHON for the analysis of multi turn CLPHP made up of copper with capillary dimensions such as 2mm and 3.1 mm inner and outer diameters. The central difference finite difference equations are used to determine the temperatures at various sections by using numerical methods. The heat transfer equations for each cell solved iteratively, and the temperature values are updated at each time step until the solution converged. The performance of the heat pipe was analysed by varying the heat inputs and working fluid conditions. PYTHON code is developed for different fluids by using libraries such as NumPy, SciPy, and Matplotlib to obtain temperature matrix. Thermal resistance as a performance parameter is calculated with the help of temperatures. The obtained temperatures by running Python code are compared with the existing experimental results.

Keywords: Closed Loop Heat Pulsating Heat Pipe, Heat Transfer, Numpy, Python Program, Temperature Difference.

ICRCESMAP030

Numerical Investigation of 1-DOF Vortex-Induced Vibration for Single Tube Subjected to Cross Flow

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ABSTRACT

Vortex-Induced Vibration (VIV) is a critical phenomenon in fluid-structure interactions, influencing the design and operation of cylindrical structures exposed to cross-flow. This study numerically investigates the VIV response of a two-dimensional elastically mounted cylinder at a reduced velocity Ur=5. The simulations are conducted using Computational Fluid Dynamics (CFD) with an Unsteady Reynolds-Averaged Navier-Stokes (URANS) solver coupled with a Shear Stress Transport (SST) k−ω turbulence model. The results are analysed in terms of dimensionless parameters such as amplitude ratio A*, lift and drag coefficients, frequency ratio f*, and vortex shedding modes. The numerical predictions are compared with experimental and previous numerical studies to validate the findings.

Keywords: Computational Fluid Dynamics, Vortex-Induced Vibration, URANS Method, Damping.

ICRCESMAP031

A Review of Different Blockchain-Based Mechanisms Incorporated for Enhancing Data Security in Digital Forensic Images

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ABSTRACT

Digital forensics plays a crucial role in criminal investigations, cybersecurity, and legal proceedings. Ensuring the integrity and authenticity of digital forensic images is paramount to maintaining evidentiary value. Traditional methods of securing forensic data face challenges such as tampering, unauthorized access, and lack of transparency. Blockchain technology, with its decentralized, immutable, and cryptographic properties, offers a promising solution to enhance data security in digital forensic images. This paper reviews various blockchain-based mechanisms that have been incorporated to improve the security, integrity, and traceability of forensic images. We discuss different blockchain architectures, consensus mechanisms, and cryptographic techniques employed in forensic applications. Additionally, we highlight challenges and future research directions in this domain.

Keywords: Blockchain, Digital Forensics, Data Security, Forensic Images, Immutability, Cryptography.

ICRCESMAP032

Connecting Communities: A Mobile App for Bridging Food Surplus and Hunger

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ABSTRACT

Food waste is a pressing global issue, especially when surplus edible food from restaurants, hotels, and events is discarded while millions go hungry. This project introduces an innovative digital platform that connects food donors with receivers in need, enabling real-time food availability posts along with location, type, and quantity details. The platform ensures that excess food reaches the hands of the hungry instead of landing in the trash. Instant, location-based notifications alert nearby receivers—including NGOs, food banks, and individuals—who can quickly respond and collect the food. Designed to be user-friendly, inclusive, and open to all, the platform empowers every citizen to take part in the fight against hunger. Our ultimate goal is simple yet profound: to ensure that even if not all, at least a few will no longer have to sleep on an empty stomach. By leveraging technology for social good, this project creates lasting impact and contributes to a more sustainable, humane world.

Keywords: Food Waste, Hunger, Donors, Receivers, Digital Platform, Real-Time Alerts, Location-Based System, Food Redistribution, Sustainability, Social Impact.

ICRCESMAP033

Inclusive Text Intercom with Vibration Alerts

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ABSTRACT

A communication system exists which uses different modes to assist individuals with hearing, visual and mobility disabilities. Through an intercom device the system receives real-time video information which enables users to recognize visitors visually. All users receive vibration feedback alerts about calls and emergencies through the system so that people with sensory disabilities can be part of the communication process. Users can modify the system according to their needs by selecting their preferred vibration intensity levels and visual notification styles. The system enables easy integration with smart home devices to enhance security and convenience for users. This system improves accessibility and safety mainly in domestic and professional environments where typical sound-based communication does not work. Through its multi-feedback system the system promotes user participation while ensuring personal independence and safety for people with diverse accessibility requirements.

Keywords: Inclusive Communication, Text Intercom, Vibration Alerts, Accessibility, Assistive Technology, Emergency Alerts, Visual Communication, Smart Home Integration, Deaf, Mobility Impairment.

ICRCESMAP034

Integrating Symmetric Ciphers and Hashing for Resilient Cloud Data Protection

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ABSTRACT

The growth of cloud computing has revolutionized how data is stored and managed, bringing increased efficiency and flexibility. However, this shift also introduces significant security concerns, particularly around the protection of sensitive information. This study addresses these concerns by exploring hybrid cryptographic approaches to strengthen data security within cloud environments. Specifically, it investigates the combined use of AES and ChaCha20 for encryption, along with SHA-3 for generating secure hash values. The encryption process involves securing plaintext files using a layered AES+ChaCha20 approach, followed by hashing the encrypted output with SHA-3 to generate a consistent message digest. The research evaluates these algorithms in terms of encryption strength, performance efficiency, and resistance to modern cryptographic attacks. Through detailed testing and analysis, the study demonstrates how hybrid encryption can effectively reduce vulnerabilities commonly found in cloud computing. The results aim to support the development of more secure data protection practices, offering valuable guidance for organizations relying on cloud services to maintain the confidentiality and integrity of their data.

Keywords: Cloud Computing, Information Security, Hybrid Encryption, AES, ChaCha20, SHA-3, Encryption Robustness, Computational Efficiency, Cryptographic Attacks, Message Digest, Data Confidentiality, Data Integrity, Cloud-Based Applications.

ICRCESMAP035

Dig Safety

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ABSTRACT

Excavation activities frequently result in damage to underground pipelines and cables, primarily due to inadequate detection systems and limited operator visibility. These limitations lead to blind spot collisions and pose significant risks to both infrastructure and safety. Additionally, the challenge of accurately measuring excavation depth often results in over-excavation or insufficient digging, further complicating construction projects. This problem highlights the urgent need for advanced detection technologies and improved operator training to mitigate risks and enhance excavation precision. Addressing these issues is crucial for minimizing damage, reducing project delays, and ensuring the safety of both workers and the surrounding community.

Keywords: Excavation, Underground Utilities, Detection Systems, Operator Visibility, Safety, Construction, Depth Measurement.

ICRCESMAP036

Talk It Out: Women Oriented Online Blogging Website with Offensive Language Detection System

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ABSTRACT

This project aims to design and implement a robust blogging website targeting women to provide a safe and secure platform to discuss personal issues, seek expert advice and foster a supportive online community. The online platform incorporated varied features, such as open and safe peer discussions, consultations with professionals like gynecologists and psychiatrists. To tackle the increasing issue of proliferation of offensive and foul language on social media and other online platforms which threatens the security and safety of the online environment; the blogging platform involves an important feature of detection of profanity and offensive language in text using NLP to maintain the Digital civility and user experience on the platform. The main goal of the platform is to create a safe, user-centered environment where women can comfortably share their experiences and find a safe community to get dependable support. This paper describes the design, implementation and testing of the platform while also highlighting the key feature that is the detection of offensive language using a robust pre-trained NLP model RoBerta [5]. The dataset used in this study comprises of the real-world social media data enriched with varied forms of offensive language collected from Facebook. The overachieving goal of this paper is to highlight the key importance of this Blogging platform while also studying the smooth integration of Machine Learning to solve the growing problem of profanity on online platforms.

Keywords: Blogging System, Online Platform, RoBERTa, NLP, Offensive Language Detection, Women, Social Media, Machine Learning.

ICRCESMAP037

Comparative Study of Shear Strength of Black Cotton Soil Using Robo-Sand and Silica Fume

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ABSTRACT

Black cotton soil, a common expansive soil found in various regions, possess significant challenges to construction due to its high plasticity, shrinkage, swelling characteristic properties, low strength and stiffness. The low strength of clay can result in settling issues, potentially causing structural problems over time. To mitigate these issues, soil stabilization techniques have gained prominence in recent years. Using admixtures like Robo sand and Silica fume to clay soil will relatively decrease shrinkage and swelling properties and improve load-bearing capacity by enhancing shear strength. In the present study, the impact of adding Robo sand and silica fume in black cotton soil is analyzed. When clayey soil is treated with Robo sand and silica fume several laboratory tests will be conducted to determine the index properties and engineering properties. These tests involve Atterberg limits, Specific gravity, Standard Proctor Compaction Test, Unconfined Compression Strength (UCS), Direct Shear Test and Differential Free Swell Index Test. Different percentages of Robo sand and silica fume (5%, 10%, 15%, 20%) are added to the black cotton soil. The addition of these stabilizers results in increased cohesion and angle of internal friction, reducing the soil's susceptibility to shear failure and settlement. This comparative study provides valuable insights into the effectiveness of Robo Sand and Silica Fume as soil stabilizers for black cotton soil, offering potential solutions for enhancing the suitability of this soil type for construction purposes. The results contribute to the knowledge base of geotechnical engineering and offer practical recommendations for sustainable soil improvement techniques in regions characterized by black cotton soil deposits.

ICRCESMAP038

Optimizing Droplet Condensation for Eco-Friendly Cooling: Experimental and CFD Validation

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ABSTRACT

An innovative hybrid cooling system that blends droplet condensation and thermoelectric cooling is introduced in this study, which maximizes energy savings and minimizes environmental effects. This system achieves enhancement of droplet formation and cooling efficiency by using new nozzle and diffuser configurations combined with conventional cooling technologies. Experimental and CFD studies show a 20% increase in cooling performance and a 15% energy use reduction over traditional systems. This hybrid approach not only makes the system more environmentally friendly but also offers a viable solution for high-risk environments such as data centers and a pharmaceutical facility. This system highlights the importance of this technology's potential in developing sustainable cooling technologies toward a sustained path of improvement for industries' sustainability and performance.

Keywords: Eco-Friendly Cooling, Sustainable Cooling, CFD Simulation, Droplet Condensation, Energy, Dehumidifiers, Energy-efficient Cooling.

ICRCESMAP039

Modelling Facial Tissue Layers for Precision Skull Overlay and Reconstruction

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ABSTRACT

Facial reconstruction from skeletal remains is a broad area of research that has great utility in forensic science, anthropology, and clinical uses. Reconstructing an individual's face from their underlying bone structure can be important in identifying unknown individuals, studying disjunctions in human evolution, and planning surgical practice. By identifying the skull's morphologic patterns to reconstruct a likely representation of the soft tissues of the skin and muscle that characterise facial structure compared with standard manual facial reconstruction the proposed workflow allows for a fast, consistent, and scalable approach. This research aims to resolve the issues associated with linking skeletal data to facial identity and has myriad applications ranging from forensic casework, through academia and clinical cases. This technological advancement represents a significant advancement in the development of data-use tools for human anatomy and creates a unique opportunity in the facial approximation domain.

Keywords: Anthropology, Disjunctions, Facial Reconstruction, Forensic Science, Myriad Applications.

ICRCESMAP040

A Comprehensive Risk Assessment of Genetical Disorder in Children

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ABSTRACT

The Genetical Disorder Risk Assessment System presents a web-based application of genetic disorder risk assessment through AI-powered face analysis and dynamic questionnaires. The system seeks to offer early, accessible, and personalized information regarding possible genetic health risks. Registration and face detection- based identification are performed using a webcam. The facial features detected are analysed to estimate the age group of the user. Depending on the age detected, a suitable questionnaire is dynamically selected. The questionnaire gathers important information regarding family history, lifestyle, and general health indicators. An educated machine learning model processes the user's answer to estimate the risk of genetic disorders. The model provides a percentage risk value and labels the outcome as high, medium, or low. The system doesn't depend on uploaded medical records, increasing convenience and ease of use. Age based detection on faces guarantees that questionnaires are age relevant and tailored. The user-friendly web interface supports health awareness among non-expert users. Instant feedback enables users to take early preventive health measures. The project focuses on privacy ensuring safe processing and storage of user information. By integrating facial recognition, dynamic form creation, and AI based analysis the system offers an innovative method of early diagnosis. The tool has the ability to assist individuals and healthcare professionals in proactive genetic health.

Keywords: Genetical Disorder Risk Prediction, Machine Learning, Facial Age Detection, Dynamic Questionnaire, Personalized Healthcare, Artificial Intelligence.

ICRCESMAP041

Detection of Autism Spectrum Disorder

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ABSTRACT

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder with complex characteristics of social interaction, communication, and behaviour difficulties. Early identification of ASD is important for early intervention and successful treatment. The purpose of this project is to create a multimodal system for early detection and classification of ASD using both textual information from behavioral screening questionnaires and visual information from facial images. The system makes use of a machine learning-driven decision tree model for analyzing text responses and a deep learning-driven Convolutional Neural Network (CNN) for processing facial images. The output from both models is fused by employing fuzzy logic to come up with a final ASD risk classification. Integration of both text and image information allows the system to present an improved, overall assessment of the likelihood of a person having ASD. Using sophisticated data processing methods, such as feature extraction, normalization, and time frame creation, the system guarantees resilience and flexibility across different applications. This strategy provides an all-inclusive solution to early detection, of ASD, assisting medical specialists in making appropriate choices and enabling prompt intervention to improve outcomes.

Keywords: Autism Spectrum Disorder, ASD, Machine Learning, Image Analysis Behavioral Patterns, Facial Expressions, Diagnosis Efficiency.

ICRCESMAP042

Enhancing The Effectiveness and Accuracy of Generalized Instances Over Imbalanced Problem Using ML

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ABSTRACT

In Machine Learning (ML), Classification with imbalanced datasets is considered to be a new challenge for researches in the framework of data mining. The imbalance problem occurs in many examples that represents one of the classes of the dataset is much lower than the other classes. To tackle with imbalance problem, pre-processing the datasets applied with oversampling method (SMOTE) was previously proposed. Generalized instances are belonging to the family of Nested Generalized Exemplar, which achieves storing objects in Euclidean n-space. The most representative mode used in NGE learning is: classical-BNGE and RISE, recent-INNER, rule induction-RIPPER and PART. The Fuzzy Neural Network approach, which is a combination of fuzzy logic and neural networks and called as Neuro Fuzzy System, which could improve the performance and accuracy of the existing system. The proposed approach deals with the comparison of NGE learning without using SMOTE methods.

General Terms: Data Pre-Processing, Cross Validation, Rule Induction.

Keywords: Nested Generalized Exemplar Learning, Imbalanced Classification, SMOTE Method.

ICRCESMAP043

Cross Age Face Recognition

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ABSTRACT

A robust face recognition system designed for real-time detection and identification of individuals in video streams. The system leverages Deep Face and Face Net for high-accuracy facial feature extraction and matching. Using a reference image for each person, the system accurately identifies individuals by comparing the live video feed with a video that contains images of the person from younger to older age which is being generated. Hence this includes live camera detection, face aging simulation, and automated alerting through email notifications when a recognized individual is detected. Experimental results demonstrate the system's ability to perform reliable face recognition under varying conditions. Addition- ally, the integration of an alert system enhances the practical applicability of the solution for finding missing children. This highlights the potential of deep learning models in enhancing the reliability and efficiency of automated recognition systems while also exploring avenues for further optimization in real-world deployments.

Keywords: Age Estimation; Face Recognition; Feature Extraction; Face Detection.

ICRCESMAP044

Multi-Dimensional Parametric Analysis of Multiplier for Signal Processing Applications

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ABSTRACT

Signal processing architectures like digital IIR (Infinite Impulse Response) filters and multipliers are crucial in biomedical applications because they enable the practical analysis, filtering, and enhancement of physiological signals, which are often noisy or distorted. In medical devices such as ECG, EEG, and EMG systems, these filters help in isolating relevant frequencies while removing unwanted noise, improving the accuracy of diagnostics. In this paper, we propose a methodology for enhancing the efficiency of multipliers used in bio-medical signal processing applications through a comparative study of Radix-4 and Radix-8 architectures. Multipliers are critical in digital signal processing systems, where conventional designs often face limitations in terms of speed, power consumption, and hardware complexity. This paper addresses these constraints by analyzing and implementing high-radix multiplier architectures optimized for performance and energy efficiency. The proposed designs were developed using a 45nm technology node and implemented through standard ASIC design flow, including RTL design, synthesis, and layout. The transition from Radix-4 to Radix-8 significantly reduces the number of partial products and additional stages, leading to lower power consumption and improved processing speed. The Radix-8 multiplier reduced delay from 72.395 ns to 51.340 ns and power savings from 0.187W to 0.163W while maintaining comparable area utilization. Consequently, the power-delay product improved from 13.53 to 8.37, demonstrating enhanced energy efficiency. These results confirm the potential of higher-radix multipliers in developing high-speed, low-power digital systems. The methodology presented here supports the design of efficient signal processing units suited for real-time and portable applications, contributing to the advancement of scalable VLSI architectures.

Keywords: Radix-4 multiplier, Radix-8 multiplier, Digital Signal Processing (DSP), Low-Power Design, High-Speed Architecture, On-Chip Power Analysis, Total Power Consumption, Propagation Delay Evaluation, Area Utilization, RTL Schematic Verification, Multiplier Optimization, VLSI Implementation.

ICRCESMAP045

A Study on Disinfection Performance of Mobile Airborne Disinfection System with Hydrogen Peroxide in Complex Areas

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ABSTRACT

Airborne Surface Disinfection (ASD) effectively neutralizes surface bioburden using a combination of specialized devices and disinfectants. This crucial technique is widely adopted in sensitive environments like operating theatres, microbiology and virology laboratories, and facilities manufacturing life-saving drugs**.** Its effectiveness is validated against various microorganisms. The success of ASD depends on several factors: the ASD device, disinfectant type, the target location's complexity and occupancy, and environmental factors such as relative humidity, temperature, and materials present. Hydrogen Peroxide (H_2O_2) is a preferred disinfectant for this application. Complex target areas often necessitate multiple devices or extended disinfection times. Integrating an ASD device onto a robotic platform can significantly enhance efficiency by reducing the need for multiple machines and shortening overall disinfection cycles without compromising efficacy. A study in a 307 cu.mt. complex location investigated the effectiveness of different ASD devices and H2O2 concentrations. The study compared a portable device (three units) with MASCA, a fogging device on a robotic platform**,** using both 6% and 7.5% H_2O_2. Chemical indicators verified disinfectant distribution, while biological indicators confirmed disinfection efficacy, both showing a >4 log reduction in bioburden. Significantly, MASCA with 7.5% H2O2 achieved successful disinfection in 124 minutes with a single unit, compared to 181 minutes with three portable devices, saving 58 minutes. Similarly, MASCA with 6% H2O2 completed disinfection in 156 minutes versus 197 minutes for the portable units, saving 41 minutes. This demonstrates the superior efficiency of the robotic platform in complex environments.

Keywords: Airborne Surface disinfection (ASD), Hydrogen Peroxide (H2O2), Enzyme Indicator (EI), Biological Indicator (BI), Chemical Indicator (CI), Disinfection, Decontamination, MASCA.

ICRCESMAP046

A Deep CNN Model for Cyberbullying Detection in Online Social Media

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ABSTRACT

Cyberbullying has become a significant issue in the digital age, affecting millions of users on social media platforms. Traditional approaches, such as keyword-based filtering and conventional machine learning models, often fail to accurately detect cyberbullying due to their inability to understand contextual meanings and linguistic variations like sarcasm and slang. This project proposes a Deep Convolutional Neural Network (CNN) model for automated cyberbullying detection in online social media text. The model leverages deep learning techniques to extract semantic features from text data, improving the detection of harmful and abusive language. The proposed system involves data preprocessing, feature extraction using word embedding, and classification using a CNN architecture trained on labeled datasets.

Keywords: Cyberbullying, Deep Learning, Convolutional Neural Network (CNN), Text Classification, Social Media, NLP (Natural Language Processing), Automated Detection.

ICRCESMAP047

Adaptive Filter-Based Grey Wolf Optimization Algorithm for Enhanced Medical Diagnosis

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ABSTRACT

Medical diagnostic systems often struggle with noise and data inconsistencies in physiological signals. This paper presents an Adaptive Filter-Based Grey Wolf Optimization (AF-GWO) algorithm that combines adaptive filtering for noise reduction and GWO for optimizing machine learning classifiers. The method was evaluated on biomedical datasets, including ECG and heart disease data, and compared with conventional techniques like GA and PSO. Results show that AF-GWO significantly improves classification accuracy, signal-to-noise ratio (SNR), and convergence speed. This hybrid approach provides an effective solution for real-time medical diagnostics, enhancing feature optimization and signal clarity. The framework demonstrates strong potential for AI-driven medical applications. Future work will explore its application in multimodal medical datasets.

Keywords: Adaptive Filtering, Grey Wolf Optimization (GWO), Medical Diagnosis, Signal Processing, Machine Learning Optimization.

ICRCESMAP048

Influence of Mechanical Properties on Al5083 Metal Matrix Composites

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ABSTRACT

Aluminum metal matrix composites (AMMCs) have garnered significant attention across various industrial sectors owing to their remarkable properties compared to conventional engineering materials. These include low density, high strength-to-weight ratio, excellent corrosion resistance, enhanced wear resistance, and favorable high-temperature properties. These materials find extensive applications in the military, automotive, and aerospace industries. AMCs are manufactured using diverse processing techniques, tailored to their specific classifications. In this study explores the advancement of aluminum-based composites through the integration of cerium oxide (CeO_2) reinforcement via stir casting. The Composites prepared by adding reinforcement particle into matrix material from 1.5wt% to 3wt% with interval of 0.5wt%. The prepared composites characterized for mechanical behaviour like tensile and hardness. The tensile test carried out by Universal Testing Machine (UTM) and hardness test carried out by Brinell Hardness machine. From the results obtained it was observed that with the increases in weight percentage of CeO_2 reinforcement particle the UTS and hardness value of the composite material increases.

Keywords: Aluminium 5083, CeO_2, Mechanical Properties.

ICRCESMAP049

Physico-Chemical Properties for Soils Type Classification of OAK using different Machine Learning Techniques

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ABSTRACT

Physico-Chemical properties of soils from different sites of Oak forest (Banj Oak (Quercus leucotrichophora), Kharsu Oak (Quercus semecarpifolia), Tilonj Oak(Quercus floribunda)) in Uttarakhand are analysed. Generally, all the factors affecting this soil site that is to say sand%, silt%, clay%, available moisture%, pH value, organic matter and carbon - nitrogen ratio are analysed across three levels of soil depths (0 to 10 cm, 10 to 20 cm, 20 to 30 cm), three slopes (Hill base (HB), Hill Slope (HS) and Hill Top (HT)) and two level of disturbances (Disturbed and Undisturbed) of the Oak forest. Machine Learning algorithms can be used to forecast and automate soil site classes on different soil sample data. This Paper weighs different supervised machine learning algorithms to classify Oak forest soil site. For this classification, support vector machine (SVM), Logistic Regression (LR), Linear Discriminant Analysis (LDA), K-Nearest Neighbour (KNN), Decision Tree Classifier (CART) and Gaussian Naïve Bayes (NB) algorithms are recommended and evaluated. Simulation is run by using Python machine learning libraries. The working performance of all the algorithms observed in the form of accurateness and consistency.

Keywords: Accuracy, Classification; Oak; Physico-Chemical Factors; Regression; Soil Type; Support Vector Machines;

ICRCESMAP050

Enhancing Chilli Farming Efficiency with IoT and Deep Learning: A Low-Cost Solution for Farmers

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ABSTRACT

To maximize the growth and yield of high-value crops like mirchi (chili pepper), which is extremely susceptible to changes in the environment and pest infestations, precision agriculture is essential. Overwatering, poor nutrient management, and delayed pest detection are all consequences of traditional methods like threshold-based irrigation systems and statistical machine learning models (e.g., Random Forest, Linear Regression) that frequently don't adjust to real-time field circumstances. Chili Guard-Net, an AI-driven Internet of Things system for real-time mirchi crop health monitoring and production prediction, is proposed in this study to overcome these issues. A wireless sensor network (WSN) is used to gather information on soil moisture, temperature, humidity, light intensity. RGB and thermal drone imagery are also used to identify early indicators of disease and stress. The dataset records significant growth-stage fluctuations and environmental effects on mirchi plants and is gathered at 15-minute intervals. Preprocessing includes anomaly correction using DBSCAN clustering to deal with sensor outliers and adaptive noise filtering using Kalman smoothing. Time-lagged agronomic features and vegetation indices (NDVI, NDRE) from drone data are combined with feature engineering to increase predictive robustness. Field tests conducted on mirchi farms show that Chili Guard-Net uses 22% less water through better irrigation scheduling and predicts diseases with 93.4% accuracy, surpassing SVM by 19.7%. The technology is feasible for smallholder farmers because of its edge computing deployment, which guarantees low-latency decision-making.

Keywords: IoT, Disease Detection, 3D-CNN, GRU, Precision Agriculture, Mirchi Crop, and Attention Mechanism.

ICRCESMAP051

Park Ease: Streamlined Parking Reservation and Management System

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ABSTRACT

City street parking is generally a hassle and time-wasting experience. It can test your patience, congest the roads, and waste fuel. The smart parking system is designed to reduce such hassle by bringing more convenience and order to parking. This project introduces a working prototype equipped with sensors to detect vehicles, an automated gate system for entry and exit, and a live display that shows real-time slot availability. With a simple web interface, clients can pre-book a parking bay, pay, and receive a unique QR code in their email. When they arrive, by presenting the QR code at the gate, it verifies the booking and opens the gate. Slot bookings are automatically updated in the system, which also handles early exits and prevents unauthorized persons from entering the parking area. Overall, the project is an efficient and economical means of eliminating parking stress within the city. By eliminating and preventing the need for manual checks, it saves fuel, reduces time, and streamlines the whole parking experience.

Keywords: IoT-Based Parking, Real Time Slot Monitoring, QR Code Verification, Automated Entry and Exit, Web-Based Interface, Unauthorized Access Control, Urban Traffic Reduction, Parking Efficiency.

ICRCESMAP052

Effect of Heat Treatment on Microstructure, hardness and wear Resistance of AZ31 Magnesium Alloy Processed by Friction Stir Processing

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ABSTRACT

The present study investigates the influence of heat treatment on the microstructural development, hardness, and wear resistance of friction stir-processed AZ31 alloy. The AZ31 alloy is friction stir processed, and heat treated, and further, the microstructure, hardness, and wear behaviour were analysed. The present study results conclude that the FSP significantly refines the AZ31 microstructure, Heat treatment leads to grain growth but may improve homogeneity. The FSP significantly increases hardness due to microstructural refinement, and Post-FSP heat treatment reduces hardness depending on temperature and time. The combined FSP and post-treatment can tailor properties for specific applications. FSP significantly enhances wear resistance by improving hardness and homogenizing the microstructure. Heat treatment can diminish these gains depending on temperature and duration.

Keywords: Friction stir processing; AZ31 alloy; Microstructure; Precipitation phenomenon; Corrosion behaviour.

ICRCESMAP053

Optimization of Laser Transformation Hardening of EN24 Alloy Steel Using RSM Coupled with Evolutionary Algorithms

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ABSTRACT

Laser transformation hardening is a promising surface modification technique that can enhance the mechanical properties of metallic alloys through localized and controlled heating and rapid cooling processes. This research investigates laser transformation hardening of EN24 alloy steel using Nd: YAG laser with three input parameters: laser power (P), travel speed (F), and pulse duration (d). The response variables in this study are depth of hardness (Dh), microhardness along longitudinal (HVL), and transverse directions (HVT). The experimental design followed a 3-level, 3-factor Central Composite Design (CCD) with response surface methodology. The ANOVA model established in this study demonstrated a strong statistical significance level and provided accurate response variable estimations. An assessment was conducted to evaluate the effectiveness of combining Response Surface Methodology (RSM) with Particle Swarm Optimization (PSO), Genetic Algorithm (GA), Artificial Neural Network (ANN), and Teaching Learning Based Optimization (TLBO). The research has determined that the RSM-PSO combination yields superior outcomes, with a maximum error rate of 3 %. The predicted Dh, HVL, and HVT are in good agreement with experimental values for the RSM-PSO technique. The optimal values for laser power (P), travel speed (F), and pulse duration (d) are around 2 kW, 2000 mm/min, and 0.02 ms. These parameters result in a depth of hardness (Dh) of 1.25 mm, microhardness along the transverse direction (HVT) of 680 HV, and microhardness along the longitudinal direction (HVL) of 553 HV.

Keywords: Laser Hardening, Laser Hardening, RSM, ANN, GA, PSO, TLBO.

ICRCESMAP054

Assessment of Climate Changes Using QGIS Software in Karnataka

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ABSTRACT

Climate change has emerged as a critical global issue, with localized impacts that require comprehensive analysis to inform sustainable development and adaptation strategies. This study aims to assess climate change trends and their spatial patterns in Karnataka state, India, using QGIS (Quantum Geographic Information System) software. QGIS, an open-source GIS platform, facilitates the integration, visualization, and analysis of geospatial and climatic data. Spatial interpolation and analytical tools in QGIS are employed to predict and map climate variability and identify vulnerable regions for the year 2030. By leveraging QGIS for climate assessment, this study demonstrates the potential of geospatial tools in supporting regional climate policy-making and fostering resilience in the face of changing environmental conditions. The findings aim to guide stakeholders in designing targeted interventions and sustainable practices to mitigate climate change impacts in Karnataka.

Keywords: GIS, Data Access Viewer, QGIS, Geo TIFF, Shape file.

ICRCESMAP055

Performance Analysis of Paver Blocks Made with Recycled Plastic and Fine Aggregates

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ABSTRACT

Nowadays in India, usage of paver blocks has become important as it is durable and if they are interlocked perfectly, they can sustain the huge vehicular load for about 20-25 years. India generates 9.46 million tons of plastic waste annually in which nearly 40% of the waste remains uncollected. This waste piles up in landfills, rivers, drains, further flows into sea, leaches into soil and ground water. The generation of rubber waste which is second largest waste generated in India and directly dumped into the landfill. To address this issue, concrete paver block was designed using plastic, M sand with the partial replacement of crushed stones. variations were made to the ratio 1:1,1:2 and 1:3. Paver blocks were evaluated for their compressive strength and water absorption at different ratios. Ratio 1:2 gives the optimum result by enhancing compressive strength by 54.4MPA and decreasing water absorption by 1.025%. This research has produced eco-friendly paver blocks by removing cement and replacing it with plastic waste, which will benefit the environment, Economical, reduce carbon foot print and be suitable for low-traffic areas, all of which contribute to sustainable development.

Keywords: Paver Block, Plastic Waste, Compressive Strength, Water Absorption, M-Sand.

ICRCESMAP056

Antibacterial Properties of Freshly Prepared Rose Petal Extracts against Escherichia: A Bacterium Responsible for Urinary Tract Infections

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ABSTRACT

Rose petals (Rosa) contain phytochemical activity and exhibit potent antioxidant, anti-inflammatory, anti-cancerous, anti-aging, anti-microbial, hepatoprotective, and neurogenic properties. They are light, natural, and rejuvenating, which makes them an ideal ingredient to be added to any meal and uplifts overall health. Rose petals have been used for centuries as a digestive aid in the Middle East, and have been shown to help improve digestion and soothe pesky stomach troubles. When consumed as a tea, rose petals have a mild laxative effect that can help everything go smoothly when it comes to digestion. In the present study, a total of 30 urine samples were collected from different pathology laboratories located in Gondia City. Based on morphological, cultural, and biochemical characteristics, bacterial isolates were identified as Escherichia species. When the antibacterial activity of aqueous and ethanolic rose petal extract against Escherichia spp. Isolated from urine samples tested showed the aqueous extract of all five types (pink, red, yellow, white, and orange) rose petals (Rosa) exhibit antimicrobial activity against isolated Escherichia spp. However, no significant difference was evident among the antimicrobial patterns of aqueous and ethanolic rose petal extract against Escherichia spp. Only with a slight difference, aqueous and ethanolic (except white rose) extracts were effective against isolated Escherichia spp. Roses are readily available everywhere, and hence, there is no need to purchase them from the market at a high cost. Thus, it is economical compared to drugs. It can be taken in different forms such as Sharbat, Shake, Gulkand, etc. Hence, everybody likes to consume it as a curing agent or medicine.

Keywords: Rose Petals, Rosa, Urine, Aqueous and Ethanolic Extract, Drugs.

ICRCESMAP057

ISL to Multilingual Text Using Deep Learning

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ABSTRACT

Communication is an important part of our day- to-day life as it allows us to express ourselves easily. However, speech isn't the only way for successful communication, gestures and signs also play an equally meaningful role in communication. Indian Sign Language Recognition is a topic that is far less researched as compared to its counterparts such as American Sign Language Detection. In this project, signs of the alphabet and digits were captured using an open cv and combined with dataset images obtained from Kaggle. The dataset was processed by resizing, flattening, and converting the images into binary. Though existing systems identify Sign Language with sufficient accuracy, this system incorporates the recognition from a very easy-to-use keyboard interface as an assistant/educator having a feature focused towards Indians that will allow getting the desired result in the text as well as audio format. For displaying the results, three languages were chosen: English, Kannada and Hindi. Random Forest Classifier is the best approach to solve this project however, due to its long process it will take a large amount of time hence, CNN is used in solving this project. This project addresses the need for a more holistic approach to ISL translation by incorporating NMFs, which are often overlooked in current translation technologies. It presents an opportunity for innovation in the field of sign language recognition and translation, aiming to improve communication accessibility for the deaf and hard-of-hearing community.

Keywords: Indian Sign Language (ISL), 3D Convolutional Neural Network (3D-CNN), Dynamic Gesture Recognition, Multilingual Translation.

ICRCESMAP058

Drug Inventory and Supply Chain Tracking

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ABSTRACT

Drug Inventory and Supply Chain Management is a crucial aspect of the pharmaceutical industry that ensures the efficient tracking, storage, and distribution of medicines. This project aims to develop a web-based application using Python, Django, and SQLite/MySQL to streamline the management of drug inventory from manufacturers to pharmacists. The proposed system provides a centralized plat form for tracking medicine stock, managing orders, and enhancing supply chain visibility. The platform allows different stakeholders, including administrators, manufacturers, distributors, suppliers, and pharmacists, to efficiently manage their respective roles. By integrating QR code-based tracking and automated order pro cessing, the system improves accuracy, reduces wastage, and prevents stock short ages.

Keywords: Blockchain-Inspired Architecture, SHA-256 Hashing, Order Integrity Atomic Transactions (Django).

ICRCESMAP059

Hardness & Wear Behaviour of AA6061-T651 Friction Stir Welded Joints with The Addition of YSZ Powder

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ABSTRACT

This study is emphasized to understand the microstructure, hardness and wear behaviour of friction stir-welded joints made of AA6061-T651 alloy. The AA6061_T651 plates of 6mm thickness were welded using friction stir welding process. Before welding, holes were drilled on the edges of the plates and are filled with YSZ micro powders. AA 6061-T651 plates were effectively used to make friction stir welding joints. The microstructures in the SZ, thermomechanical affected zone, and heat affected zone shows Mg2Si precipitate distribution. The hardness distribution indicates that the hardness values of all zones are more when compared to the base material on cross section side than on surface of weld. The wear resistance of the stirred zone is more when the load applied is less.

Keywords: Friction Stir Welding, AA 6061-T651, Microstructure, Micro- Hardness, Wear Resistance.

ICRCESMAP060

Real Time Hand Gesture Based Robot

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ABSTRACT

In this paper a prototype model of real time hand gesture based robot is proposed and is named "RoboCar" which is virtually controlled by hand movement. The main aim of designing RoboCar is to provide options for running car without any physically contact for controlling its functions. The design proposed here is about making a robot car that can be controlled by hand gestures using an arduino. When you move your hand, sensors detect the movement and send signals to the robot car through Bluetooth. The robot car then moves according to your hand gestures. It also has an ultrasonic sensor to avoid obstacles in its path. The system uses a flex sensor and an accelerometer to track hand movements. The Arduino reads these signals and controls the car's motors. This robot car can be helpful in areas like security, searching unknown places, and during rescue operations. Designing and testing of proposed model of RoboCar is demonstrated in detail and it is ready to use as a product for humankind.

Keywords: Accelerometer, Arduino Uno, Bluetooth, Flex sensor, Microcontrollers etc.

ICRCESMAP061

Evolution of Visual Storytelling in Social Media Advertisements for Non-Durables

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ABSTRACT

Visual storytelling has become essential in social media marketing, particularly for non-durable goods where rapid consumption and fierce competition require brands to craft compelling visual narratives. This research examines how visual storytelling has evolved in social media advertising for non-durable products, focusing on the interplay between visual semiotics and narrative techniques. A combination of content analysis, thematic review in the study identifies key trends in imagery, colour palettes, and symbolic elements. It considers the influence of platform-specific standards and new technologies, such as AR and AI-generated visuals, on these practices. The insights in this study offer both academic and practical value by demonstrating how digital environments have transformed visual marketing approaches. The review concludes by outlining existing research gaps and the road ahead.

Keywords: Visual Storytelling, Digital Marketing, Non-Durable Goods, Social Media, Visual Imagery, Narrative Strategies, Consumer Interaction.

ICRCESMAP062

Binary Arithmetic Calculator: A 4 Bit Signed Design Using Schematic and Verilog

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ABSTRACT

This article presents "An Integrated Approach: Design and Implementation of a 4-Bit Signed Binary Calculator for Arithmetic Operations using Schematic and Verilog". Capable of performing essential arithmetic operations like addition, subtraction, multiplication, and division, this calculator has been meticulously crafted to cater specifically to the efficient computation needs of a 4-bit binary system. By integrating numerous arithmetic modules including an adder-subtractor unit, a multiplier, and a divider, this calculator achieves exceptional functionality and reliability. To maximize performance and minimize hardware complexity, the implementation of the calculator harnesses a combination of combinational and sequential logic design techniques. This strategic approach allows for rapid computation and facilitates seamless execution of arithmetic operations within the limitations of a 4-bit binary environment. I have used Xilinx Design suite 14.7 to design and simulate the Schematic and Verilog Design.

Keywords: 4-bit, Arithmetic Operation, Xilinx Design Suite 14.7.

ICRCESMAP063

Modeling & Analysis of Cylinder Block for V8 Engine

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ABSTRACT

Healthcare accessibility remains a significant challenge for especially abled individuals who face barriers in communicating symptoms and accessing timely medical support. This research introduces a novel solution a Voice and Data-Controlled Medical Assistant powered by machine learning aimed at improving healthcare access for especially abled persons. The assistant takes input in both voice and text formats, analyzes the provided symptoms using a trained model, and outputs predicted diseases along with detailed symptom descriptions, preventive measures, medication recommendations, suitable workouts, and diet plans. This system not only bridges the communication gap but also promotes self-reliance in managing health

Keywords: Voice and Data-Controlled Medical Assistant, Specially Abled Persons.

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ICRCESMAP064

Real-Time Multilingual Speech Translation for Peer Communication

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ABSTRACT

Language continues to be a major obstacle to effective communication in a world that is becoming more interconnected by the day. This paper presented a real-time audio translation system that facilitates multilingual communication during peer to-peer video calls. The application enables natural communication in the user's preferred language by utilizing WebRTC for low-latency media transmission and incorporating sophisticated AI models such as Whisper for speech-to-text, GPT for language translation, and gTTS for text-to-speech synthesis. In addition to allowing real-time subtitle overlays and translated audio playback during conversations, the system supports five other languages: English, Hindi, Tamil, Telugu, and German. Low latency, scalability, and user-centric design are prioritized in the architecture, which is constructed with a Fast API backend and a React-based front-end. We address issues such as translation delays, synchronization, and audio buffering, and assess the system using user experience, latency benchmarks, and qualitative performance.

Keywords: WebRTC, Real-Time Translation, Multilingual Communication, Speech-to-Speech Translation.

ICRCESMAP065

Fruit Quality Evaluation Using Deep Learning

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ABSTRACT

Fruit detection is an essential task in the agricultural sector for automating harvesting, sorting, and quality assessment. This paper presents an overview of fruit detection techniques, including traditional image processing methods and modern deep learning approaches. The study highlights convolutional neural networks (CNNs) and object detection algorithms such as YOLO (You Only Look Once) and Faster R-CNN for real-time fruit recognition. Experimental results demonstrate high accuracy in detecting various fruit types, with improvements in precision and recall

Keywords: Fruit Detection, Computer Vision, Deep Learning, YOLO, Faster R-CNN, CNN.

ICRCESMAP066

IoT-Driven Intelligent Automation for Energy Conservation in Lecture Halls

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ABSTRACT

The use of energy during the current age is imperative in efficiently utilizing resources and conserving energy from wastage. Efficiency in using energy not only saves costs but also helps towards sustainable environments. The current work presents an IoT-based Energy Saving System for Lecture Rooms with a purpose of automating and maximizing utilization of electrical appliances such as light, fan, and air conditioner. The system incorporates Passive Infrared (PIR) sensors to sense the presence of human beings and to turn on/off the lights and fans automatically. The room temperature is also sensed by a temperature sensor and is displayed on an LED display, and the AC operates on pre-set temperature ranges to make it fully energy efficient. The system is combined with a real-time monitoring system wherein users are able to observe energy usage through an IoT-based interface. The proposed system will reduce wastage of energy because of manual operation and prolonged usage of electrical appliances in unoccupied lecture rooms. With the application of fuzzy logic-based dynamic control, the system conserves a significant amount of energy, approximately 41.96%, in comparison with normal manual operation. Apart from that, the system provides real-time electrical load consumption data through a mobile app to enable better monitoring and management of electrical loads. The results indicate that the IoT-based energy-saving system effectively saves energy and promotes environmental sustainability through a decrease in greenhouse gas emissions. The research contributes to the development of smart and intelligent power-saving systems for schools and similar environments, increasing energy efficiency and cost-effectiveness.

Keywords: Energy Saving System, Smart Lecture Hall, IoT, Sensors.

ICRCESMAP067

Two-Wheeler Traffic Violations Detection and Automated Penalty Issuance System

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ABSTRACT

Road safety is one of the highest priorities, as road accidents are among the major causes of deaths in India. Road Accidents are primarily caused due to violators of road safety regulations such as not wearing a helmet, triple riding etc. Though there are many smart systems to monitor these violations, yet they are prone to lot of errors. Additionally, the tickets are issued manually and this manual process mostly leads to delay and errors. In order to overcome these problems, we are suggesting an integrated system that automates the violation detection, makes tracking of offenders easier, and facilitates timely issuance and collection of fines. Such a system would increase enforcement efficiency, improve road safety, and minimize the frequency of accidents due to violation of traffic rules. The suggested system can identify whether the rider is wearing a helmet or not, identifies the pillion riders (not more than 2 persons including the rider), and even if they exceed the specified speed limit, under any violation of the above-stated rules the system can automatically issue tickets on the respective vehicles using its registration number (i.e., License plate). Though the ticket is issued, the majority of them won't pay the challan on time, therefore we introduce the concept of penalty points for each vehicle. If the penalty points cross a certain threshold, then we restrict the vehicle owner from further renewal of the vehicle insurance and even he/she will not be able to claim the insurance amount if needed.

Keywords: Triple Riding Detection, Helmet Detection, Over Speeding Detection, Automated Ticket Generation, License Plate Recognition.

ICRCESMAP068

A Comprehensive Review on 5G Networks: Architecture, Applications, and Challenges

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ABSTRACT

The fifth generation of mobile communication technology, or 5G, represents a monumental leap forward in wireless connectivity. With features including ultra-high-speed data transfer, ultra-low latency, and unprecedented levels of device connectivity, 5G is set to revolutionize industries and user experiences across the globe. This review paper provides a detailed exploration of 5G networks, spanning its architectural design, enabling technologies, use cases, and prevailing challenges. Drawing insights from recent academic contributions and technical standards, this paper discusses 5G's evolution from its predecessors, its core components like network slicing, SDN, NFV, and MEC, as well as its implications for IoT, smart cities, and autonomous systems. Furthermore, the paper analyzes the implementation hurdles, including spectrum allocation, security, and integration with existing networks. This comprehensive review aims to serve as a foundational resource for researchers, engineers, and policymakers working towards the global adoption and optimization of 5G networks.

Keywords: 5G, Network Architecture, SDN, NFV, IoT, Smart Cities, URLLC, mMTC, eMBB, Network Slicing, Security.

ICRCESMAP069

Development of a Versatile and Fast Algorithm for Optimal Ship Routing in the Indian Ocean

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ABSTRACT

The global shipping industry is one of the major contributors to fossil fuel consumption, prompting a strong demand for more fuel-efficient operations. Beyond fuel usage, critical considerations such as voyage duration, passenger comfort, and route safety significantly impact overall operational performance. This project presents the development of a dynamic, multi-parameter ship route optimization application specifically designed for the Indian Ocean. At its core lies a robust and adaptive optimization algorithm that integrates real-time weather data, ship-specific characteristics, and drift patterns to calculate the safest and most time-efficient route in real time. The system prioritizes voyage time and safety while allowing for future scalability to include additional operational parameters. Built using open-source tools like Python, the application is highly customizable and accessible, offering a practical solution tailored to the evolving needs of the Indian shipping industry.

Keywords: Real-Time Ship Routing, Marine Navigation Optimization, Weather-Aware Navigation, Python-Based Marine System, Route Safety, Voyage Efficiency, Indian Ocean Shipping, Fuel Consumption Reduction.

ICRCESMAP070

Digital Locker Using Blockchain

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ABSTRACT

Digital Locker using Blockchain is a decentralized, AI-assisted platform designed to Securely store, manage, and share sensitive digital documents such as academic certificates, Identity proofs, legal records, and medical reports. Built using a modern full-stack architecture with a React + Vite frontend and a Python-based Flask backend, it leverages blockchain Technology to ensure document immutability, integrity, and transparent access control. The System integrates smart contracts on a permissioned blockchain to automate secure storage, Timestamping, access permissions, and third-party verifications, while also supporting IPFS for Distributed file storage and Supabase for off-chain metadata handling. Intelligent modules such as DocuNode (Document Controller), VeriChain (Verification Engine), Access Sentinel (Permission Manager), and Audit Trail (Activity Logger) streamline over 30+ secure operations Including encryption, document sharing with zero-knowledge proof, KYC-linked identity Access, and real-time audit logging. By combining cryptographic security (AES, SHA-256), Blockchain transparency, and intuitive UI/UX workflows, Digital Locker using Blockchain Addresses the critical need for trustworthy, tamper-proof digital document management, offering a scalable solution for individuals, institutions, and government entities while ensuring Privacy, reliability, and user empowerment in the era of decentralized identity and digital trus

Keywords: File, Locker, Blockchain.

ICRCESMAP071

Enhancing Employee Performance: The Role of HR Practices in Private Banking Sector

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ABSTRACT

This study explores the impact of key HR practices—training, performance appraisal, employee engagement, and work-life balance—on employee performance in the private banking sector. Using primary data from structured questionnaires and secondary data from academic sources, the research applies correlation, and regression techniques. The findings lead to the conclusion that HR practices significantly influence employee performance in the private banking sector. It underscores the need for tailored HR strategies to improve performance and offers valuable insights for HR professionals and policymakers.

Keywords: Human Resource Practices, Employee Performance, Private Banking Sector. Training and Development, Performance Appraisal, Employee Engagement.

ICRCESMAP072

Performance Analysis of Two-Phase Constant Pressure Ejector Used in Ejector Expansion Refrigeration System (EERS)

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ABSTRACT

As the urgency to reduce high-grade energy consumption grows, it is crucial to investigate innovative alternatives to energy-intensive technologies like vapor compression refrigeration. One promising approach is the integration of a two-phase ejector in place of the traditional throttle valve, which can significantly lower power usage in standard vapor compression refrigeration systems. This study focuses on designing a constant-pressure two-phase flow ejector and assessing the performance of an ejector expansion refrigeration system using R134a as the refrigerant. To optimize performance, a simulation program was created to analyze how various operating and geometric parameters of the ejector affect system efficiency. A comparison with existing experimental data revealed that the developed model can accurately predict the system's coefficient of performance (COP). Notably, the COP improved by 8.86% when the evaporator temperature was raised from -25°C to 20°C and by 14% when the condenser temperature increased from 30°C to 70°C. Furthermore, the study provides correlations for sizing the key parameters of the ejector based on operating conditions, system cooling capacity, and ejector efficiencies.

Keywords: **Constant Pressure Ejector; Coefficient of Performance; R134a; Vapour Compression Refrigeration.**

ICRCESMAP073

Faster R- CNN Using MRI: Cerebrovascular Diseases

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ABSTRACT

Cerebrovascular diseases such as stroke are among the most common causes of death and disability worldwide. Stroke is a severe condition that requires prompt diagnosis and treatment to prevent disastrous consequences. In this piece of work, we present a unique approach to detect brain stroke using Deep Learning techniques. To achieve this goal, we have developed an early stroke detection system based on magnetic resonance imaging (MRI) of the brain couple with a genetic algorithm and a faster R-CNN to detect stroke at a very early stage. Faster R-CNN architecture consists of two components Region Proposal Network (RPN) and Faster R-CNN detector. Cross validation was used to evaluate the accuracy of the diagnostic system.

Keywords: MRI, Faster R-CNN, RPN, SVM.

ICRCESMAP074

AI-Driven Pest and Disease Detection in Smart Farming Systems

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ABSTRACT

AI-driven pest and disease detection is transforming agriculture by enabling precise and early identification of crop health issues. This paper explores the integration of Artificial Intelligence (AI), specifically machine learning (ML) and deep learning (DL), for pest and disease management in smart farming systems. By utilizing real-time data from IoT sensors, drones, and satellite imagery, AI models can detect crop diseases and pests early, enabling targeted interventions. The paper reviews existing AI-based systems and proposes a framework that combines image processing, machine learning, and environmental data to enhance pest detection and reduce pesticide usage. The study concludes that AI can improve crop yield, reduce environmental impact, and promote sustainable farming practices.

Keywords: Artificial Intelligence, Smart Farming, Pest Detection, Crop Disease, Machine Learning, Deep Learning, Computer Vision, IoT, Precision Agriculture.

ICRCESMAP075

Recycled Plastics in Construction: A Pathway to Sustainable Infrastructure

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ABSTRACT

In the present day, the production and disposal of plastic waste pose significant environmental challenges, motivating researchers to explore solutions that will reduce their impact on the environment, including the incorporation of recycled plastics into construction materials. This review paper presents a comprehensive review of the current state of research on the use of recycled plastics in construction, with a particular focus on their use in concrete and other cementitious composites being the focus of this study. As a result of the integration of recycled plastics, there are not only benefits in terms of waste management, but also in terms of material properties and environmental sustainability, as well. In a variety of studies, recycled plastics have been shown to be suitable for use as aggregates or fibers in concrete, affecting properties such as strength, durability, and thermal stability as a result. It was found that a lot of information had been published which categorizes the literature in terms of the type of plastic used and its impact on the mechanical and physical properties of construction materials. In addition, the paper discusses the limitations and future prospects of using recycled plastics in construction, emphasizing the need for further research in order to optimize material performance and ensure long-term sustainability as well. The purpose of this comprehensive review is to provide insight into the potential of recycled plastics as a viable alternative in the construction industry, thereby contributing to the conservation of the environment and the efficient use of resources.

Keywords: Plastic Waste, Recycled Plastics in Construction, Composites, Sustainability, Physical Properties.

ICRCESMAP076

Ultra-High-Performance Fiber-Reinforced Concrete: A Comprehensive Review

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ABSTRACT

Ultra-High-Performance Fiber-Reinforced Concrete (UHPFRC) is a breakthrough in concrete technology, offering exceptional strength, durability, and ductility. This review compiles recent advances in the material design, microstructural evolution, and mechanical performance of UHPFRC. The composition is characterized by a dense matrix, low water-to-binder ratios, and the use of fine reactive powders and high-performance fibers. Innovations in mix design optimization and the incorporation of nano-materials have led to sustainability gains and cost efficiency. Applications in structural strengthening, bridge construction, and high-performance infrastructure demonstrate the practical viability of UHPFRC. However, challenges such as cost, workability, and standardization remain. This review underscores UHPFRC's pivotal role in next-generation infrastructure, paving the way for resilient and sustainable construction practices.

Keywords: Cementitious Composites; Fibbers; Mechanical Behaviour; Microstructure, UPHFRC.

ICRCESMAP077

A Smart Flood-Responsive Bridge with Automated Elevation and Alert System

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ABSTRACT

Floods lead to a vast loss of life and property in many countries. Bridges are important in modern world. Bridge failures are one of the most infrastructure problems in the world. It often leads to the catastrophic consequences, loss of life, restricted commerce. Whenever there is a disaster there is loss of lives, damage to the public property. The objective of this project is to monitor the flood situation lift the bridge in case of danger in the form of buzzer sound. A smart bridge is one that senses some significant condition of its environment or behaviour and then automatically reacts to that condition. “A Smart Flood-Responsive Bridge with Automated Elevation and Alert System” is designed to maintain a safe height during heavy rain or floods. It is equipped with a servo motor, which is connected to an Arduino board that controls its movements. The servo motor is connected to the hydraulic system that raises or lowers the bridge's height. When the water level sensor detects a rise in water level, it sends a signal to the Arduino board, which then sends a signal to the servo motor to raise the bridge's height and the buzzer gives the sound to alert the user. This process continues until the water level decreases to a safe level. Similarly, when the water level decreases, the moisture sensor sends a signal to the Arduino board, which then sends a signal to the servo motor to lower the bridge's height. This helps ensure the bridge is at a safe height, preventing any accidents or damage during heavy rain or floods. And also, we want to work on sending an SOS response or an emergency alert to disaster management response team during the above-mentioned scenario.

Keywords: Smart Bridge, Flood-Responsive System, Servo Motor, Arduino, Water level sensor and Emergency Response.

ICRCESMAP078

A Study of Corporate Websites and their E-Commerce Portals on the Communication of Sustainability for a Better Future

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ABSTRACT

E-commerce has revolutionized shopping over the years, offering vast opportunities for producers to highlight their goods and attract online shoppers. In recent times, heightened awareness of sustainability due to climate change has steered governments and businesses to pursue net zero goals by 2030-2050. This shift demands a strategic focus on infrastructure, supplier sustainability, managing packaging, delivery, returns, waste disposal, and community upliftment as a part of corporate responsibility. The aim of this qualitative research is to examine how leading global and Indian e-commerce portals communicate these initiatives on their corporate and online shopping websites. Growing awareness of sustainable environment initiatives and the circular economy drives supply chain partners and consumers to participate in the process. The study indicates that to build a better future, leading portals must enhance their efforts to achieve sustainability goals by more prominently engaging consumers at the point of purchase. Sharing sustainability and corporate responsibility initiatives and their outcomes is crucial for consumer participation, building brand loyalty, and fostering pride in contributing to environmental efforts. We argue that organizations must focus more on communicating sustainability initiatives on their corporate and e-commerce websites to engage customers for a better future.

Keywords: Sustainability, E-Commerce, Communication, Customer Engagement.

ICRCESMAP079

Parametric Evaluation of Multiplier Architectures for Digital IIR Filter Applications

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ABSTRACT

Signal processing architectures like digital IIR (Infinite Impulse Response) filters and multipliers are crucial in biomedical applications because they enable the practical analysis, filtering, and enhancement of physiological signals, which are often noisy or distorted. In medical devices such as ECG, EEG, and EMG systems, these filters help in isolating relevant frequencies while removing unwanted noise, improving the accuracy of diagnostics. In this paper, we propose a methodology for enhancing the efficiency of multipliers used in bio-medical signal processing applications through a comparative study of Radix-4 and Radix-8 architectures. Multipliers are critical in digital signal processing systems, where conventional designs often face limitations in terms of speed, power consumption, and hardware complexity. This paper addresses these constraints by analyzing and implementing high-radix multiplier architectures optimized for performance and energy efficiency. The proposed designs were developed using a 45nm technology node and implemented through standard ASIC design flow, including RTL design, synthesis, and layout. The transition from Radix-4 to Radix-8 significantly reduces the number of partial products and additional stages, leading to lower power consumption and improved processing speed. The Radix-8 multiplier reduced delay from 72.395 ns to 51.340 ns and power savings from 0.187W to 0.163W while maintaining comparable area utilization. Consequently, the power-delay product improved from 13.53 to 8.37, demonstrating enhanced energy efficiency. These results confirm the potential of higher-radix multipliers in developing high-speed, low-power digital systems. The methodology presented here supports the design of efficient signal processing units suited for real-time and portable applications, contributing to the advancement of scalable VLSI architectures.

Keywords: Radix-4 multiplier, Radix-8 multiplier, Digital Signal Processing (DSP), Low-power design, High-speed architecture, On-chip power analysis, Total power consumption, Propagation delay evaluation, Area utilization, RTL schematic verification, Multiplier optimization, VLSI implementation.

ICRCESMAP080

IoT-Enabled Child Safety Mechanism for preventing Deaths in Vehicles

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ABSTRACT

Children being left unattended in parked vehicles poses serious safety risks, including suffocation, heatstroke, and other life-threatening conditions. This project proposes an IoT- based child safety system that utilizes oxygen and sound sensors to mitigate these dangers. The oxygen sensor monitors Oxygen level inside the vehicle, ensuring safe oxygen levels, while the sound sensor detects noises such as cries or signs of distress from a child. The system sends automated alerts to parents or guardians via phone alert for immediate action. In cases where mobile network signals are unavailable, an external speaker is activated to alert surrounding people, ensuring timely assistance. By focusing solely on oxygen and sound-based detection mechanisms, the system offers a reliable, practical, and cost-effective solution to enhance child safety in parked vehicles.

Keywords: Oxygen Sensor, Sound Sensor, Vehicle Safety, Monitors Oxygen Levels, Smart Alert System, Emergency Notification, In-Vehicle Child Detection, Cry Detection, External Speaker Alert.

ICRCESMAP081

Predictive Modeling for Early Disease Diagnosis Using Machine Learning: A Healthcare Data-Driven Approach

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ABSTRACT

The application of machine learning (ML) in healthcare has transformed the way clinical data is analyzed and utilized for patient care. This study investigates the effectiveness of predictive Modeling using ML algorithms for early disease diagnosis, focusing on chronic conditions such as diabetes, cardiovascular diseases, and cancer. Leveraging large-scale electronic health records (EHRs), we implemented and compared multiple supervised learning models, including Random Forest, Support Vector Machine (SVM), and Gradient Boosting, to predict disease onset based on clinical parameters and patient history. The models were evaluated based on accuracy, precision, recall, and F1-score, with Gradient Boosting demonstrating superior performance in most scenarios. Our findings highlight the potential of ML in enhancing diagnostic accuracy, enabling earlier intervention, and ultimately improving patient outcomes. The study underscores the importance of data quality, feature selection, and algorithm interpretability in healthcare ML applications. Future research should focus on integrating real-time data and improving model generalizability across diverse populations.

Keywords: Machine Learning, Predictive Modeling, Healthcare, Early Diagnosis, Electronic Health Records (EHRs), Chronic Disease, Supervised Learning.

ICRCESMAP082

Fault Diagnosis and Health Management of Bearings in Rotating Equipment Based on Vibration Analysis

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ABSTRACT

The requirement to maximize bearing lifetime and maintenance costs by identifying defects early on is growing. This can be accomplished by enhancing bearing fault identification and prognosis in order to more accurately estimate bearing remaining usable life (RUL). Rotating machine failure identification can be aided by vibration-based condition monitoring. Previous works have established the unification of time and frequency domain features with signals from numerous sensors for fault diagnosis in order to produce a single analysis. Conventional time and frequency domain extraction methods in conjunction with both conventional and deep learning machine learning algorithms are regarded as innovative ways for the creation of new prognostic methods. In order to construct intelligent systems to evaluate the RUL of bearings, several ways use the benefits of each strategy while overcoming its drawbacks. Although there are many different methods for diagnosis and prognosis, the review demonstrates that they are either domain-specific and cannot be generalized, or they are appropriate for certain circumstances.

Keywords: Bearing Faults, Time/Frequency Analysis, Machine Learning, Diagnosis, Prognosis, Remaining Useful Life.

ICRCESMAP083

Adaptive Beamforming in mm Wave Integrated Sensing and Communication

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ABSTRACT

Beamforming has emerged as a transformative antenna technology, especially in the context of 5G and beyond wireless communication systems. It leverages spatial signal processing through antenna arrays to dynamically steer beams toward desired users while suppressing interference, thereby enhancing signal quality and spectral efficiency. This paper explores the comprehensive classification of beamforming techniques—fixed, switched, adaptive, analog, digital, hybrid—as well as their implementation challenges and applications. Adaptive beamforming utilizes digital signal processing to continuously adjust antenna patterns, allowing real-time tracking of user locations and dynamic null steering against interference sources. The evolution from analog to digital and hybrid beamforming enables higher flexibility, supporting advanced multi-beam MIMO systems despite hardware complexity and power constraints. The paper further delves into the role of beamforming in Integrated Sensing and Communication (ISAC), a paradigm gaining prominence in millimeter-wave (mm Wave) bands. With their large bandwidth and compact antennas, mm Wave frequencies facilitate simultaneous communication and environmental sensing. However, challenges such as severe path loss and mutual interference between sensing and communication beams necessitate sophisticated beam management strategies. To address this, multi-beam architectures are proposed where separate beams handle communication and sensing tasks independently, optimizing both link quality and sensing resolution. Moreover, beamforming in ISAC systems demands real-time beam adaptation, low-latency processing, and interference mitigation to fulfill the joint objectives. The paper emphasizes the need for novel beamforming optimization approaches capable of balancing SINR, sensing accuracy, and system throughput under hardware and mobility constraints. These advances pave the way for intelligent beamformers, enabling the convergence of radar and communication functionalities for next-generation wireless networks.

Keywords: Beamforming, Adaptive Antenna Arrays, ISAC, mm Wave, Hybrid Beamforming.

ICRCESMAP084

Review of Sentiment Analysis in Cryptocurrency Trading

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ABSTRACT

The rapid rise of cryptocurrencies has impacted the global socio-economic landscape, encouraging investors to seek income through crypto trading. Due to the market's volatility and complex interdependencies, researchers have built various prediction models using machine learning, deep-learning, and sentiment-based hybrid algorithms. Notably, the DLCFS (Deep Learning Cryptocurrency Forecasting considering Sentiment) framework incorporates market features, trading volume, and sentiment from Reddit to improve price predictions for Bitcoin, Ethereum, and Litecoin—achieving high accuracy when compared to traditional machine learning models. Alongside forecasting, sentiment analysis play an important role in understanding market trends and investor behavior. With growing user-generated content across different platforms like social media and news sites, extracting public sentiment through NLP has become essential. Recent works explore advanced models and datasets tailored to the unique linguistic features of crypto-related content, highlighting the need for robust and adaptive sentiment analysis techniques in this dynamic domain.

Keywords: Cryptocurrency Market Prediction, Sentiment Analysis, Natural Language Processing (NLP), Deep Learning Models, Support Vector Machine (SVM),Social Media Mining, LSTM Networks, Reddit and Twitter Sentiment, Hybrid Forecasting Models, DLCFS Framework.

ICRCESMAP085

Waste Management- A study of Bangalore

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ABSTRACT

As India's Silicon Valley. Bangalore's rapid growth has brought forth significant waste management challenges. The city's daily waste generation of 5000 tons and above possesses substantial environmental and health risks. To mitigate this Bangalore has adopted cutting edge waste management strategies. Despite advancements, infrastructure gaps and public awareness deficits persist, sustainable waste disposal remains critical for Bangalore's eco-friendly future. Bangalore's waste management initiatives prioritize sustainability and community engagement challenges remain but progress is underway. Efficient waste disposal is vital for the city's growth and health. The research study conducted has brought about certain findings where most of the respondents were female with 56 percentages out of the total sampled 200 respondents. Majority of the respondents are very satisfied on waste collection and waste disposal. In the research I have identified waste collection is happening on daily basis this will show a strong present waste management is taking place out of 100 percentage of the respondents 90 percent of the respondents are aware of the rules and regulations and segregation rules of waste management this will show as a strong people awareness about waste management. It was found out that out of 100% of the respondents 74 percent respondents are segregating the waste at home and when interview was conducted most of the respondents replied that it was their responsibility by being a citizen of this country. Eighty percent of the respondents are willing to participate in community driven initiatives remaining. The research methodology followed was both primary and secondary data was collected and by means of interview method. Sampling technique is simple random and descriptive analysis is followed. Percentage was used for data analysis. To conclude Bangalore is already bursting at the seams with reaching full capacity and improper waste disposal has led to serious environmental concerns. The findings related to waste management Bangalore has experienced significant urbanization leading to increased waste generation due to a growing population and consumption patterns. One common issue is the missing of recyclable organic and non-recyclable waste.

Keywords: Waste Segregation, Non-Recyclable, Dry Waste, Environment, Pollution.

ICRCESMAP086

Fuel Eye an Intelligent IoT Framework for Smart Fuel Management and Distance Prediction in Sustainable Transportation

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ABSTRACT

The development of intelligent transportation systems has increased demand for energy-efficient, real-time vehicle technologies that support sustainable mobility and smart city ambitions. This study introduces FuelEye, an intelligent IoT-based framework for intelligent fuel management and accurate distance prediction, which is motivated by current advancements in IoT-enabled vehicle platforms and predictive analytics [1][2]. The system uses GPS telemetry, embedded sensors, and onboard diagnostics (OBD-II) to track fuel levels, usage trends, and the remaining trip distance in real time. Building on techniques demonstrated in remote monitoring frameworks and vehicle edge computing, cloud-based data analytics and machine learning models are combined to offer predictive insights and adaptive route optimization [3]. Collectively, anomaly detection, remote diagnostics, and eco-routing techniques are supported by the architecture, which lowers fuel use and boosts total transportation effectiveness. The system's feasibility for low-cost deployment in connected car ecosystems is shown by simulations and prototype implementation outcomes. FuelEye is an intelligent and scalable system that is helping to build the next generation of smart and sustainable transportation infrastructures.

Keywords: Smart Fuel Management, OBD, Sustainable Mobility, Intelligent Transportation Systems, Vehicular Analytics, Predictive Modeling.

ICRCESMAP087

IoT–Enabled Smart Bridge Control with Node MCU Esp8266

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ABSTRACT

The increasing demand for intelligent infrastructure has led to the development of automated systems capable of enhancing safety, efficiency, and reliability in bridge operations. This research presents the design and implementation of an Advanced Bridge Control System using embedded technology, specifically centered on the Arduino Uno microcontroller. The system integrates a range of sensors, actuators, and wireless communication modules to monitor environmental and traffic conditions and automatically control the opening and closing of a movable bridge. The project aims to reduce human intervention, improve response time during high traffic or emergency scenarios, and ensure structural integrity through real-time data collection. Key features include obstacle detection, automated barriers, warning systems, and remote control capability. This low-cost, scalable solution demonstrates how embedded systems and IoT components can be effectively used to modernize critical infrastructure. Simulation results and prototype testing confirm the system's functionality and potential for real-world deployment in smart city environments.

Keywords: Wireless Sensor Networks (WSN); DTMF; Sensors; PIR; GSM; GPS; Arduino Uno.

ICRCESMAP088

Hydrogen-Enriched Biofuels: A Hybrid Approach for Cleaner Combustion in CI Engines

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ABSTRACT

The blending of hydrogen with biofuels represents an innovative strategy to enhance combustion quality while reducing harmful emissions in compression ignition (CI) engines. This study investigates the performance and emission characteristics of a hydrogen-enriched biodiesel blend, specifically using waste cooking oil methyl ester (WCOME) as the base fuel. Hydrogen was introduced through the intake manifold at controlled flow rates, while biodiesel was injected via the standard injector. Tests were conducted on a single-cylinder CI engine at varying loads and hydrogen energy share levels. The addition of hydrogen improved the brake thermal efficiency by up to 15%, reduced ignition delay, and resulted in more complete combustion due to better air-fuel mixing and higher flame speeds. Emission analysis revealed significant reductions in CO, unburnt hydrocarbons, and smoke opacity. However, a rise in NO_x emissions was observed with increased hydrogen fraction, necessitating the use of EGR and injection timing optimization to maintain compliance with emission norms. The dual fuel approach also enabled partial substitution of liquid fuels, reducing fossil fuel dependency. The paper discusses the synergies between renewable liquid fuels and hydrogen, emphasizing their combined potential to meet future sustainability goals. Fuel compatibility, safety considerations, and retrofitting challenges are also addressed. The findings establish hydrogen-enriched biodiesel as a feasible and environmentally beneficial fuel blend for CI engines, particularly in decentralized energy systems and agricultural sectors where biofuels are readily available.

Keywords: Hydrogen-Enriched Biodiesel, Compression Ignition Engines, Emission Reduction, Dual Fuel Combustion.

ICRCESMAP089

Enhancing UV-A Radiation Shielding in Automotive Windshields Using Nanostructured Cerium Oxide Coatings

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ABSTRACT

Automotive windshields serve as the primary interface between passengers and external solar radiation. Exposure to UV-A radiation (315–400 nm) has been linked to various health and material degradation effects. This study investigates the development and characterization of nanostructured cerium oxide (CeO_2) coatings as an effective UV-A shielding material for windshields. Nanoparticles were synthesized using a sol-gel route and deposited via a spin-coating process onto glass substrates. UV-Vis spectroscopy was used to analyze optical transmittance and UV-A absorption. Results indicate a significant decrease in UV-A transmission (>75% blocking efficiency) with minimal interference in visible light transmission, supporting CeO_2's potential as an ideal candidate for next-generation UV-protective coatings in automotive applications.

Keywords: Automotive Windshield; Cerium Oxide; Nano Coatings; Optical Properties; UV-A Shielding.

ICRCESMAP090

Pyrolysis of Plastic Waste as an Alternative of Fuel: A Review

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ABSTRACT

Plastic waste pyrolysis is a promising route to recover energy by converting end-of-life plastics into valuable hydrocarbon fuels. This review examines recent advances in thermal and catalytic pyrolysis of plastic waste, with an emphasis on fuel production, catalyst and reactor developments, and engine applications. Here in this study, outline the key process steps and illustrate typical pyrolysis setups. Various pyrolysis technologies are compared, including reactor designs and heating modes as well as discuss catalyst types (zeolites, clays, metal oxides) and their effects on product yields and quality. Extensive tables summarize catalyst performance, reactor characteristics, fuel yields from different plastics, and engine combustion results (efficiency and emissions). The literature shows that optimized catalytic systems can greatly improve oil yield and composition, producing diesel-like fuels from mixed plastic waste. Engine tests indicate that plastics pyrolysis oil (PPO) can substitute for diesel with lower cetane and higher viscosity, yielding comparable brake thermal efficiency and controllable emissions when blended or upgraded. From this attempt has made to scale up plastic-to-fuel pyrolysis in a sustainable alternative option for the fuel.

Keywords: Pyrolysis, Fuels, Plasto Oil.

ICRCESMAP091

Hydrogen Production and Storage Technologies: Advances and Challenges for Future Mobility

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ABSTRACT

Hydrogen is positioned as a cornerstone of the clean energy transition, particularly in transportation sectors where decarbonization is technically challenging. This paper presents a comprehensive review of current hydrogen production and storage technologies, emphasizing their readiness and relevance to future mobility. Green hydrogen, produced via water electrolysis powered by renewable energy, is the most sustainable pathway but remains economically constrained. Alternatives such as biomass gasification and solar thermochemical processes are also explored for their long-term potential. On the storage front, the paper discusses compressed gaseous hydrogen, liquid hydrogen, and solid-state storage using metal hydrides. Each storage method is evaluated based on energy density, safety, cost, and compatibility with vehicular applications. The challenges of hydrogen embrittlement, refueling infrastructure, and volumetric constraints are critically examined. Case studies of hydrogen-powered buses and trucks from global demonstration projects are analyzed to assess practical feasibility. Additionally, a techno-economic model compares hydrogen infrastructure with conventional fuels and battery-electric systems, incorporating lifecycle emissions and operating costs. The paper concludes by outlining key research directions, including materials development for high-pressure tanks, modular electrolyzers for decentralized production, and integration with smart grid systems. Regulatory frameworks, safety standards, and public-private partnerships are also identified as crucial enablers. This review serves as a roadmap for researchers, policymakers, and industries aiming to establish hydrogen as a sustainable fuel for the next generation of mobility solutions.

Keywords: Green Hydrogen, Storage, Mobility, Emission, Embrittlement, Decarbonization.

ICRCESMAP092

Federated Learning-Driven Machine Learning Approaches for Autism Spectrum Disorder Detection Across Age Groups

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ABSTRACT

Autism Spectrum Disorder (ASD) is a complex neurological and developmental condition that affects individuals across various age groups, making timely and accurate detection crucial for effective intervention. Traditional machine learning approaches for ASD detection often require centralized data, raising concerns about data privacy and security. This research explores federated learning as a privacy-preserving paradigm to develop robust machine learning classifiers for ASD detection in both children and adults. By enabling collaborative model training across multiple institutions without sharing sensitive patient data, federated learning addresses key ethical and legal challenges associated with healthcare data. The study employs a range of machine learning algorithms, including deep neural networks and ensemble methods, to analyze heterogeneous clinical and behavioral datasets. Comparative evaluations demonstrate that federated models achieve performance comparable to, or exceeding, centralized models while maintaining data confidentiality. Furthermore, the research investigates age-specific patterns in ASD presentation, enhancing model interpretability and clinical relevance. Results indicate that federated learning not only preserves privacy but also supports scalable and generalizable ASD detection across diverse populations. This work highlights the potential of federated approaches to revolutionize digital health diagnostics, paving the way for more inclusive and secure healthcare solutions. Future directions include expanding dataset diversity and integrating multimodal data sources to further improve detection accuracy.

Keywords: Autism Spectrum Disorder; Federated Learning; Privacy; Early Detection; Healthcare Data.

ICRCESMAP093

Green Marketing: Adoption Challenges and Global Perspective

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ABSTRACT

Globally, environmentally friendly marketing activities have a much higher priority in social and business life. This is not as if some leaders were from different. The gradual decline of the environment causes concerns for the nation or one or two large famous corporations, which is global threat to environmental, concerns. Thus green marketing strategies are gaining popularity among marketers. They are now developing products and services that are at least usable and meet the requirements of being sustainability. Clients also accept goods and services that claim to protect the environment from processes that waste and pollute. Currently, business organizations are becoming more interested in this, and competition is fostered. At every level of the company, including the operational level, environmentally friendly practices are integrated with services and goods. Mother Nature and consumers ultimately benefit.

Keywords: Green Marketing Mix, Sustainable Products, Sustainable Developments, Green Marketing, Green Washing.

ICRCESMAP094

Optimization of Mix Design for Self Compacting Concrete Using Artificial Neural Networks

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ABSTRACT

Self-compacting concrete (SCC) has emerged as a revolutionary material in the construction industry, known for its high flowability and ability to consolidate under its own weight without the need for mechanical vibration. However, the complexity of SCC mix design, due to the interplay of multiple variables, poses a challenge to traditional optimization techniques. This study explores the application of Artificial Neural Networks (ANNs) for optimizing SCC mix design. A comprehensive dataset derived from experimental studies and literature was used to train and validate an ANN model. The network predicts key performance indicators such as compressive strength and flow characteristics based on input parameters including cement content, water-to-binder ratio, and admixture dosage. The ANN model achieved a high prediction accuracy ($R^2 > 0.95$), and sensitivity analysis was performed to identify critical mix components. The optimized designs were experimentally validated, showing good agreement with model predictions. The results demonstrate that ANN provides a robust and efficient tool for SCC mix design optimization, minimizing trial-and-error processes and material waste.

Keywords: Compressive Strength, ANN, Concrete, Mix Design, Optimization, And Self Compacting Concrete.

ICRCESMAP095

Women Safety Analytics –Protecting Women from Safety Threats

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ABSTRACT

Women Safety Analytics – Safeguarding Women against Safety Risks is an end-to-end mobile application that ensures women's safety through real-time analytics, intelligent sensing, and machine learning. Built on Android Studio with Java for backend services and XML drag-and-drop for the user interface, the application offers a simple and effective platform for emergency response. Major features of the application are user registration and login, an emergency button that, upon press, directly shares the user's current location with pre-registered emergency contacts. The app also offers gesture-based alerts like a phone shake—to discreetly initiate location sharing. It also offers an audio trigger: upon detection of the word "Help" via the microphone, an alert is sent to the emergency contacts. The second part of the project uses machine learning to identify potential safety risks in public observation settings. In particular, the system can detect situations where a woman is single in a potentially risky environment and automatically raise alerts. This proactive capability utilizes image or video analytics to determine contextual risk and initiate timely response. By integrating mobile technology with smart analytics, this project seeks to deliver a complete solution to forestall and react to safety risks against women, ultimately to contribute to a more secure and safer environment.

Keywords: Women Safety, Real-time Analytics, Emergency Response, Android Application, Java Backend, XML UI, Location Sharing, Gesture-based Alerts, Audio Trigger, Machine Learning, Intelligent Sensing, Risk Detection, Video/Image Analytics, Mobile Security, Contextual Risk Analysis, Safety Monitoring, Proactive Alert System, Emergency Contacts, Smart Technology Integration, Public Safety.

ICRCESMAP096

Harnessing Technology for Sustainable Waste Management: A Circular Economy Approach

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ABSTRACT

India is advancing from a traditional linear economy to a more sustainable circular model through strategic policies and initiatives. Programs such as CITIIS 2.0 promote climate-resilient infrastructure and international cooperation, while the 12th Regional 3R & CE Forum reinforces waste reduction strategies through the Jaipur Declaration. Despite generating approximately 160,038 tons of municipal waste daily, only half undergoes scientific treatment, raising environmental concerns. As waste generation increases, cities must adopt innovative policies and technology-driven approaches. Digital transformation plays a crucial role in enhancing waste management by leveraging data analytics, automation, and stakeholder collaboration. Implementing digital tracking and take-back programs shifts waste management from a linear disposal system to a circular approach, improving recycling and resource recovery. This paper explores the impact of emerging technologies—such as artificial intelligence (AI), Internet of Things (IoT), block chain, and advanced recycling methods—on revolutionizing waste management. By integrating these innovations, cities can progress toward a zero-waste future with efficient segregation, processing, and reuse strategies.

Keywords: **Circular Economy: Municipal Solid Waste: Digital Technologies.**

ICRCESMAP097

Safeguarding The Cloud Frontier

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ABSTRACT

In today's cloud-centric environment, organizations face a growing array of security challenges that threaten data integrity, privacy, and compliance. This study explores the critical security risks associated with cloud computing, including data breaches, identity and access vulnerabilities, misconfigurations, and advanced cyber threats. It examines existing security frameworks, mitigation strategies, and best practices aimed at strengthening cloud security. Additionally, the paper emphasizes the importance of automation, continuous monitoring, and proactive risk management in addressing these challenges. By analyzing the evolving threat landscape, this research provides valuable insights into current security concerns and potential future advancements in cloud security.

Keywords: Cloud Security, Cyber Threats, Data Protection, Identity and Access Management, Compliance, Security Automation, Continuous Monitoring, Risk Mitigation, Cloud Vulnerabilities, Threat Detection.

ICRCESMAP098

Retail Investors and IPO Subscription in the Indian Capital Market

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ABSTRACT

This Paper titled "Retail Investors and IPO Subscription in the Indian Capital Market " is an attempt to analyse the extent of IPO subscriptions in the retail investors' category. In the study, the IPO subscriptions of 79 mainboard IPOs floated in India, during (2017-2019) have been considered to get an understanding of the trends in IPO subscription in the different investor categories (NII, QIB & RII). Further, the year wise as well as the overall (for the three-year duration) IPO subscriptions in the Retail Individual Investor (RII) category have been analysed using descriptive statistical tools in order to get a better understanding about the extent of over/under subscriptions of the IPOs in the retail investor segment. The findings suggest that out of the 76 IPOs that were open for subscription for retail investors, only 24% were undersubscribed whereas the remaining 76% were fully subscribed or oversubscribed.

Keywords: IPO Subscriptions, Retail Individual Investor (RII), QIB, NII.

ICRCESMAP099

Investigation on Metal Foam Made Via Powder Metallurgy Method Using Carbamide as A Space Holder

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ABSTRACT

The metal foams are materials consisting of porosity in solid metal. Generation of porosity in any metal can change different characteristics and properties in different aspects like thermal properties e.g heat conductivity and resistivity or mechanical properties e.g. density or compressive strength. The foams can be produce either in solid state or liquid state of metal. Powder metallurgy is one of the reliable method to produce foams using space holders in a solid state of metal. Characteristic of foams highly depends on the process parameters like compaction pressure, pore density and sintering. Here in this study using carbamide as a space holder and aluminium as a base metal, foams are produced. Effect of different process parameters are studied to check behaviour under compressive loading. While manufacturing samples, spalling was observed after water leaching process due to which multiple samples have been failed. Selected sample were sintered under controlled atmosphere at 600 degrees Celsius and tasted for compaction. Under compaction loading, sintered samples were compressed up to 70% of sample length and required load was plotted. Resulting formation of strain vs strain graph shows the plateau region where maximum amount of energy imparted by compaction was absorbed by pores.

Keywords: Metal Foams, Powder Metallurgy, Carbamide, Space Holder.

ICRCESMAP100

AI in Drug and Vaccine Engineering: Progresses and Challenges

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ABSTRACT

Drug and vaccine discovery are often expensive, time-consuming, and labor-intensive. In this period of rapid advancements, there has been tremendous growth in the development of Artificial Intelligence (AI) catered towards faster identification of drug candidates, optimization of clinical trials, and vaccine design enhancement. This survey endeavors to highlight how AI techniques such as machine learning and deep learning are applied to the identification of targets, compound screening, and prediction of drug safety. It also examines applications of vaccine design, including epitope prediction and viral mutation monitoring. Even though AI offers benefits like speed, cost-saving, and increased accuracy, the use of AI also raises concerns like data quality, regulation, and integrability of the system. This paper aims to provide a brief and concise overview of modern AI applications in drug innovation.

Keywords: Artificial Intelligence, Drug Discovery, Vaccine Development, Epitope Prediction.

ICRCESMAP101

Agri-Drop IQ: A Digital Innovation for Crop-wise Water Footprint Intelligence & Sustainable Farming

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ABSTRACT

Efficient water management in agriculture is critical to ensure sustainability, particularly in regions facing water scarcity. This project presents an integrated hardware-software system that leverages digital technology to calculate the water footprint of different agricultural products and automate irrigation based on real-time environmental data. The system begins with a user-friendly web interface where farmers or users input key parameters such as crop type, farm location, land area, and irrigation method. This data is combined with live weather information retrieved from online APIs and soil moisture readings obtained from in-field sensors. Using these inputs, the software component dynamically calculates the crop-specific water footprint by employing standard evapotranspiration models and crop coefficients, factoring in rainfall and irrigation efficiency. When the soil moisture falls below optimal levels and no rainfall is predicted, the system automatically activates irrigation through microcontroller-driven hardware connected to a water pump and valves.

Keywords: Smart Irrigation, Sensors, Farming, Analysis.

ICRCESMAP102

A Comparative Study On the Optimization of Milling Parameters for Jute/Epoxy & Glass/Epoxy Composites Using the Taguchi Method & Response Surface Methodology

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ABSTRACT

Fiber reinforced composites are widely employed in various industries because of their excellent strength-to-weight ratio and tailor-made properties. Machining of these composites particularly by CNC milling is a challenging task because they are extremely abrasive in nature. This work presents a comparative study of the milling performance of jute/epoxy and glass/epoxy composites. The Taguchi method and Response Surface Methodology (RSM) were applied to optimize the milling parameters such as spindle speed, feed rate, depth of cut and end mill diameter with the objective of minimizing the surface roughness and maximizing the material removal rate (MRR). Experimental results were compared using Signal-to-Noise (S/N) ratios and Analysis of Variance (ANOVA) to find the significance of each parameter. The results revealed that while both composites exhibit different machining characteristics, glass/epoxy tends to produce lower surface roughness, while jute/epoxy produces better sustainability and affordability. Among the parameters, feed rate significantly impacted MRR, while depth of cut was highly influential factor for both composites. ANOVA revealed that for jute/epoxy, all variables except spindle speed affected surface roughness, with feed rate being most influential. For glass/epoxy, depth of cut was the most influential on surface roughness. The optimal parameters for maximizing MRR in both composites were a spindle speed of 3000 rpm, feed rate of 200 mm/min, depth of cut of 3 mm and tool diameter of 12 mm. For minimizing surface roughness, optimal parameters for jute/epoxy were a spindle speed of 1000 rpm, feed rate of 100 mm/min, depth of cut of 1 mm and tool diameter of 10 mm, while for glass/epoxy spindle speed of 1000 rpm, feed rate of 100 mm/min, depth of cut of 3 mm and tool diameter of 10 mm. This work proved that the type of reinforcement material plays a vital role in finding optimum combination of milling parameters for minimizing surface roughness and maximizing the material removal rate.

Keywords: CNC Milling, Optimization, Milling parameters, Jute/Epoxy, Glass/Epoxy, Taguchi Method, RSM.

ICRCESMAP103

Dynamic Speed Management Enhancing Traffic Safety with Adaptive Speed Breaker

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ABSTRACT

Dynamic Speed Management (DSM) with adaptive speed breakers offers an innovative traffic solution. Unlike static bumps, these breakers use real-time data from advanced sensors (like IR for velocity) to respond dynamically. They remain retracted for vehicles within speed limits, ensuring smooth travel, but activate only for speeding vehicles to enforce safer driving. Machine learning models, such as YOLOv8, identify emergency vehicles, deactivating the breakers for their unobstructed passage. This selective system significantly enhances road safety by reducing accidents caused by abrupt braking. It optimizes traffic flow, minimizes disruptions, and consequently lowers fuel consumption, emissions, road wear, and vehicle maintenance costs. DSM also fosters a culture of safer driving. Integrating smart technologies like IoT and advanced controls, DSM's future includes smart city ecosystem integration, predictive analytics, and energy-harvesting capabilities, potentially making breakers self-sustaining. Its scalability suits diverse environments, from urban intersections to highways. DSM represents an intelligent, sustainable, and environmentally conscious approach to modern traffic management, pivotal for evolving smarter transportation systems.

Keywords: AI system for Emergency Vehicle Detection, Dynamic Speed Management (DSM), Adaptive Speed, Breakers, Real-Time Monitoring.

ICRCESMAP104

Quality Improvement in Composite Grating Industry by Application of Statistical Quality Control Tools

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ABSTRACT

Composite gratings are becoming popular for its benefits like corrosion and chemical resistance, high strength-to-weight ratio, non-conductivity and safety, low maintenance, durability and ease of installation. So it demands better quality of the produced composite gratings. Mainly man, machine, material, method and measurement are the sources of the defects in the process of manufacturing of composite gratings. In this study the sources of defects are explored by root cause analysis. Along with that the quality improvement in terms of controlled weight differences in the 25 mm grey composite gratings between two different batches has been found by application of statistical quality control tool i.e. control charts ($\bar{X}$ chart and R chart).

Keywords: Quality Improvement, Control Charts, Statistical Quality Control, Composite Grating.

ICRCESMAP105

CNN-RNN-Bayesian Hybrid Method for Predicting Neonatal ICU Cardiac Arrests

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ABSTRACT

Infant cardiac arrest is a serious medical emergency that needs to be identified quickly in order to be effectively treated. The goal of this study is to apply sophisticated statistical techniques to create a Cardiac Machine Learning Model (CMLM) that can predict neonatal cardiac arrest in the Cardiac Intensive Care Unit (CICU). The model makes use of physiological markers and makes use of prediction methods like logistic regression and support vector machines. The diagnostic procedure is enhanced by imaging techniques such as computed tomography and echocardiography. With a delta-p value of 0.912, FDR of 0.894, FOR of 0.076, prevalence threshold of 0.859, and CSI of 0.842 in training and similar metrics in testing, the suggested CMLM showed excellent performance. These findings point to the robustness and dependability of the model. The CMLM has the potential to dramatically lower neonatal mortality and morbidity rates by facilitating the early diagnosis of cardiac arrest episodes, which would improve outcomes for critically unwell infants in the intensive care unit.

Keywords: Cardiac Arrest Prediction, Neonatal Intensive Care, Hybrid Deep Learning Model, CNN-RNN-Bayesian Approach, Early Detection in New burns.

ICRCESMAP106

Deep Learning and Quick Text Embedding's for Deep-Fake Detection

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ABSTRACT

The legitimacy of social media content, especially textual content, is facing significant challenges because to the spread of deepfake technologies. This study shows how to recognise machine-generated tweets using deep learning and fast text embeddings. We create a dataset that displays different language styles and contains both authentic and fraudulent tweets. Rapid text embeddings facilitate effective feature extraction by enabling a deep learning network to understand semantic nuances. The machine can consistently and precisely distinguish between authentic and fraudulent content by using this dataset for training and validation. The findings demonstrate that by making deepfake text easier to identify, this technique aids in the battle against social media misinformation. According to this research, automated technologies are essential for safeguarding online discourse against deepfake threats.

Keywords: Deepfake Detection, Social Media, Deep Learning, Text Embeddings, Misinformation.

ICRCESMAP107

A Deep Neural Network Method for Heart Rate Variability-Based Multiclass Stress Detection

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ABSTRACT

Expectations can naturally cause stress, particularly if such expectations are perceived as hazardous or damaging. Chronic, long-term stress raises the likelihood of mental health conditions like sleeplessness, depression, and anxiety. A popular stress metric is heart rate variability (HRV), which shows changes in the intervals between heartbeats as opposed to heart rate, which is an average. This paper investigates heart rate variability (HRV) as a stress biomarker and suggests a convolutional neural network (CNN)-based model for multi-class stress classification in order to distinguish between no stress, interruption stress, and time pressure stress. The model outperformed current methods in terms of accuracy when tested on the SWELL-KW dataset. This work highlights the significance of HRV properties for stress diagnosis using variance analysis.

Keywords: Heart Rate Variability (HRV), Stress Detection, Convolutional Neural Network (CNN), Multi-Class Classification, Feature Extraction.

ICRCESMAP108

A Study on the Impact of Human Resource Accounting and Talent Management in Private Higher Educational Institution-with Special Reference, Patna, Bihar

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ABSTRACT

Human Resource Accounting (HRA) is an emerging discipline that seeks to quantify the value of human capital within organizations. In the context of private higher educational institutions, faculty members play a crucial role in shaping academic excellence, institutional reputation, and student success. However, the lack of standardized models and awareness of HRA has limited its adoption in the education sector. This study explores the impact of HRA and talent management on faculty retention, promotion, and institutional performance. The research employs a quantitative methodology, using primary data collected from 150 faculty members, HR professionals, and administrators through structured surveys. Descriptive statistics, correlation analysis, and regression analysis have been applied to interpret the data and examine the relationship between HRA, talent management practices, and faculty retention. The study identifies key talent management strategies, including recruitment, training, performance appraisal, compensation, and engagement programs, and evaluates their impact when integrated with HRA. Findings suggest that transparent HRA practices positively influence faculty motivation, job satisfaction, and retention, while the absence of structured human resource valuation hinders effective talent management. The study also highlights major challenges such as financial constraints, lack of awareness, and resistance to change in adopting HRA within educational institutions. Based on the results, this research proposes policy recommendations for integrating HRA with talent management to enhance faculty performance and institutional growth. This study contributes to the growing body of knowledge on HRA and talent management in the education sector, offering insights for institutional leaders, policymakers, and researchers. The implementation of structured HRA frameworks and strategic talent management practices can significantly improve faculty engagement, academic performance, and institutional sustainability in private higher education institutions.

Keywords: Human Resource Accounting (HRA), Talent Management, Faculty Retention, Higher Education, Private Institutions, Patna, Bihar, Performance Appraisal, Institutional Growth.

ICRCESMAP109

The Evolution of Natural Language Processing: Current State and Future Directions

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ABSTRACT

Natural Language Processing (NLP) has recently garnered significant attention for its ability to represent and analyze human language computationally. Its applications have expanded across diverse domains including machine translation, email spam detection, information extraction, text summarization, medical informatics, and question answering. This paper explores the development of NLP through four distinct phases, examining various levels of language processing and the components of Natural Language Generation (NLG). Additionally, it presents a historical overview of NLP, reviews the current state of the art, highlights key applications, and discusses emerging trends and ongoing challenges in the field.

Keywords: Natural Language Processing (NLP), Computational, Linguistics, Machine Translation, Spam Detection, Information Extraction, Text Summarization, Informatics.

ICRCESMAP110

An Advanced Image Processing System for Counterfeit Currency Detection: Architecture, Methodology, and Feature Analysis

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ABSTRACT

The proliferation of counterfeit currency poses a serious threat to global and national economies, disproportionately affecting individuals who lack access to sophisticated verification tools. This report introduces an innovative, image processing-based system developed in Python to bridge this accessibility gap by enabling average users to authenticate currency notes with ease. The system follows a structured sequence—image acquisition, grayscale conversion, edge detection, segmentation, feature extraction, and comparison—to accurately distinguish between genuine and counterfeit notes. Unlike traditional binary verification tools, this system enhances transparency and trust by visually highlighting discrepancies on suspected counterfeits. Designed for user-friendliness and potential mobile integration, the solution democratizes financial security, addressing a socio-economic imbalance by empowering individuals with the tools to protect themselves. Its adaptable framework also allows for future expansion to include multiple currencies, marking a significant step toward global financial protection and reinforcing public confidence in the integrity of currency systems.

Keywords: Counterfeit Detection, Image Processing, Currency Authentication, Financial Security, Python, Edge Detection, Feature Extraction, Mobile Application, Accessibility, Socio-Economic Equity, Currency Integrity, Visual Verification, Global Applicability.

ICRCESMAP111

Self-Compacting Concrete Using ALCCOFINE 1203 and Brass Coated Micro Steel Fiber

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ABSTRACT

In India, the "Smart City" initiative necessitates innovative materials for enhanced structural development. The innovative cement concrete must be economical, durable, and provide an appealing aesthetic quality. The self-compacting concrete (SCC) aims to achieve superior performance, enhanced durability, and consistent quality. This paper evaluates the influence of Alccofine 1203 (AF) and brass-coated micro-steel fibers (BCMSF) on the performance of SCC. This study has designed and tested M30-grade concrete that incorporates AF and BCMSF. The experimental work includes the substitution of cement with 5%, 10%, and 15% AF, as well as the effects of adding 1% and 2% BCMSF to the concrete. This study evaluates SCC behavior in terms of its fresh properties and its compressive strength

Keywords: SSC, Alccofine, Micro-Fiber, Concrete Strength, Flowability.

ICRCESMAP112

Machine Learning Techniques for Predicting Material Wear Rate and Frictional Force Using LM26 and Garnet Composite

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ABSTRACT

This study explores the application of machine learning techniques to predict material wear rate and frictional force, employing linear regression and random forest regression models. The analysis focuses on four key variables—load applied, sliding velocity, sliding distance, and reinforcement—to develop predictive models capable of estimating wear and friction behaviour. Using LM26 and garnet composite data, the models are trained to capture the relationship between Input parameters and target outcomes. Linear regression provides insight into the linear dependencies among variables, while random forest regression handles complex nonlinear interactions for improved prediction accuracy. The LM26 and garnet composite experimental setup emphasizes the significance of load and reinforcement effects on wear rate, with sliding velocity and distance further refining the predictive capability. The study highlights the suitability of composite-specific data and the advantages of combining regression methods for wear behaviour analysis. Results showcase promising predictive accuracy, offering valuable insights for optimizing material design and usage in tribological applications. This project underscores the critical role of machine learning in advancing material science, emphasizing its utility in predicting wear rate and friction characteristics effectively.

ICRCESMAP113

CFD Analysis to Enhance Heat Transfer Using CuO–Water Nanofluids in a Spiral Baffle Shell-and-Tube Heat Exchanger

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ABSTRACT

This study focuses on enhancing the thermal performance of a spiral baffle shell-and-tube heat exchanger using CuO–water nanofluids. Simulations were conducted using ANSYS Fluent with four nanoparticle concentrations (0.1%, 0.25%, 0.5%, and 1.0% by volume) at three mass flow rates (0.5, 1.0, and 2.0 kg/s). The aim was to evaluate how these parameters affect heat transfer efficiency. The results revealed that CuO nanofluids significantly improve heat transfer at low flow conditions. The highest enhancement was observed at 1.0% concentration and 0.5 kg/s flow rate, with a heat transfer improvement of approximately 18% compared to pure water. At higher flow rates, the improvement was less effective due to reduced residence time. The spiral baffle design contributed to better fluid mixing and turbulence, supporting overall thermal performance.

Keywords: Shell-and-Tube Heat Exchanger, Spiral Baffles, CuO–Water Nanofluid, CFD, Heat Transfer Enhancement.

ICRCESMAP114

AI-Powered Recommendation System for Personalized Course and Mentor Selection

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ABSTRACT

Online courses have revolutionized the education landscape, providing students with the flexibility to learn at their own pace and access a wide range of topics from anywhere in the world. However, traditional online course and mentor recommendation systems face several challenges. These systems typically rely on basic factors such as course descriptions, ratings, and reviews, but fail to offer personalized or contextually relevant suggestions. As a result, students may find it difficult to navigate through a plethora of courses, and mentors, who are crucial to a student's learning journey, are often not appropriately matched. This leads to inefficiencies in the course selection process and poor student engagement due to irrelevant or generic recommendations. To overcome these issues, this project proposes an innovative recommendation system for both online courses and mentors, incorporating Natural Language Processing (NLP) and deep learning techniques, particularly Lexicon-Enhanced Long Short- Term Memory (LSTM). The system is designed to analyze large datasets of course and mentor reviews, as well as course content, to provide more accurate, personalized recommendations. By applying sentiment analysis, the system processes nuanced feedback from students to identify specific course attributes and mentor qualities that align with a learner's needs, preferences, and academic goals. This not only enhances the matching process for courses but also recommends mentors whose expertise and teaching styles complement the student's learning preferences. The model considers factors like student goals, learning styles, and past performance to suggest courses and mentors who can provide a tailored educational experience. This personalized approach ensures that students receive relevant course and mentor suggestions, fostering a more effective and satisfying learning experience.

Keywords: Hand Gesture- CNN Architecture- Navigating Slides Video Frames- Capturing The Dynamic Motion Patterns Associated- Convolutional.

ICRCESMAP115

Design and Simulation of a Portable Bidirectional Dual Active Bridge EV Charger

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ABSTRACT

The evolving Electric Vehicle (EV) ecosystem needs flexible charging solutions due to concerns like more charging time, limited driving range, particularly with limitation of charging infrastructure. This paper addresses the need for portable battery chargers to provide a reliable backup in emergency situations where EVs run out of charge unexpectedly. Moreover, these chargers are essential for remote locations where conventional charging infrastructure is unavailable, ensuring uninterrupted mobility. A Dual Active Bridge (DAB) DC-DC converter with bidirectional key functionality is selected because of its high power density and bidirectional power flow capability. One of the inputs to the converter DC bus is from vehicle battery, enhancing V2V charging connection. Another option of charging in remote location resembling G2V charging with 230 V AC input port with diode rectifier supplying DC power to converter input. The bidirectional power transfer is enabled depending on the voltage levels of the battery. The DAB converter is designed to convert 12V input to 36V output at a higher switching frequency of 300kHz, meeting the power requirements of typical EV batteries. The proposed 1kW charger circuit is modelled and simulated using MATLAB Simulink R-2024B software. Simulations validate the performance of the charger with efficient SoC management and minimized battery current fluctuations.

Keywords: Portable EV Charger, Dual active bridge converter, Bidirectional Converter.

ICRCESMAP116

An Enhanced Automatic Lung Disease Diagnosis Scheme Using ECG Signals with Integrated Feature Extraction and Improved Deep Learning

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ABSTRACT

An early detection of lung disease can avoid patient death by giving useful treatment. The human with related lung conditions nearly contains related electrocardiogram (ECG) signals. The ECG examination can be an analytical system employed on the screen for various lung diseases. Arrhythmias are discovered through patterns of ECG signals. Nowadays, most of the ECG analysis is done according to the medical team‟s personal opinion, which may have led to more burden. Therefore, in this paper, an automatic lung disease diagnosis scheme is presented through an accurate ECG signal categorization using improved deep learning processes. Initially, ECG signal data is pre-processed with noise removal and QRS complex discovery schemes. Subsequently, an integrated feature extraction method is proposed in this paper to extract the ECG wave features. The presented automatic lung disease detection scheme is examined using the ECG signals dataset collected from a MIT-BIH arrhythmia database.

Keywords: Lung Disease Detection, ECG Signals, QRS Complex Discovery, Integrated Feature Extraction, Enhanced ECG Signal Categorization.

ICRCESMAP117

Green Fin-Tech and Digital Sustainability

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ABSTRACT

Green FinTech—the intersection of financial technology and environmental sustainability—represents a growing force in driving climate-conscious financial behavior and promoting sustainable development. This study explores the role of Green FinTech in advancing digital sustainability, focusing on how digital tools such as green investment platforms, carbon tracking apps, and ESG-integrated financial services are shaping the future of green finance. Using a mixed-methods approach, including surveys and expert interviews, the research assesses consumer awareness, trust, and adoption of Green FinTech solutions. It also examines the challenges faced by stakeholders in implementing and scaling these technologies, particularly in developing economies. Findings suggest that while Green FinTech offers significant potential to democratize access to sustainable finance, key barriers remain—including regulatory uncertainty, lack of ESG standardization, low digital literacy, and concerns over greenwashing. Despite these challenges, Green FinTech is seen as a powerful tool for integrating sustainability into mainstream financial systems. The paper concludes with recommendations to strengthen the Green FinTech ecosystem, such as promoting clearer regulatory frameworks, enhancing consumer education, and supporting innovation. As the global economy becomes more digitized, Green FinTech emerges as a vital enabler of environmentally responsible financial growth.

Keywords: Green FinTech, Digital Sustainability, ESG Integration, Sustainable Finance.

ICRCESMAP118

A Comprehensive Review of the Cognitive and Therapeutic Effects of Mantra Meditation

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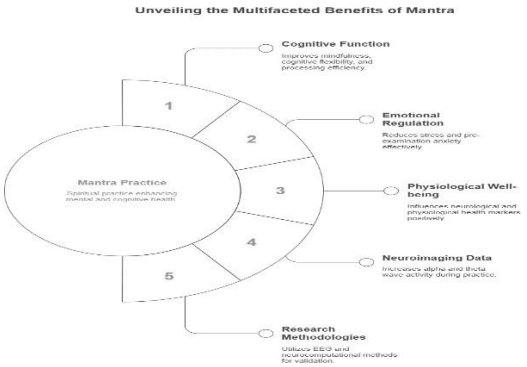
ABSTRACT

Mantra, a spiritual and cognitive practice, has gained significant attention in contemporary scientific discourse due to its potential mental health benefits. This review consolidates existing research on the effects of mantra chanting, particularly its influence on cognitive function, emotional regulation, and physiological well-being. Studies indicate that mantra enhances mindfulness, reduces stress, and improves cognitive flexibility, with neuroimaging data suggesting increased alpha and theta wave activity during practice. The impact of mantra is particularly relevant in academic settings, where students face heightened stress levels. Empirical evidence from EEG-based research demonstrates a reduction in pre-examination anxiety and an enhancement in cognitive processing efficiency following mantra chanting. Furthermore, ancient Vedic practices such as Yagya and Vishnu Sahasranama chanting have shown promise in therapeutic applications, influencing both neurological and physiological health markers. Current research utilizes Convolutional Neural Networks (CNNs) with Long Short-Term Memory (LSTM) models to analyze EEG signals for validating the stress-management effects while improving brain cognition from mantra. The recognition of mantra effectiveness is solid yet researchers need larger standardized studies and more consistent experiment design with adequate participant numbers to validate these results. Research into mantra-based interventions needs to involve continuous EEG observation in combination with state-of-the-art neurocomputational methods and tracking participant progress through time. The combination of traditional wisdom with modern scientific methods makes mantra a valid and whole-systemic method to build mental strength and cognitive health.



Keywords: Mantra, Meditation, Cognitive Function, Stress Reduction, EEG Analysis, Neuroplasticity, Vedic Practices, Deep Learning, Emotional Regulation, Mental Health Intervention.

ICRCESMAP119

Design and Development of Walking Assistive Devices

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ABSTRACT

This project presents the design and development of a walking assistive device aimed at improving mobility and independence for individuals with walking difficulties, including the elderly and people with physical impairments. By understanding the difficulties faced by the elderly, we modified the hand stick by placing a suitable spring to reduce the stress developed in their joints. In the trial-and-error phase of development, our project focuses on affordability, ease of use, and adaptability to the needs of different users, making it a practical solution to enhancing the quality of life for mobility-impaired individuals. The effectiveness of the device was evaluated through Ansys simulations by including two different material which are stainless steel, aluminium alloy and in the near future with the results obtained from Ansys simulations development of a prototype and conduction of user trials is to be done, as well as inclusion of IOT devices in the walking stick to demonstrate significant improvements in stability and user satisfaction.

Keywords: Walking Assistive Device, Spring, Affordability, Ansys, Prototype.

ICRCESMAP120

Performance Evaluation of Claude Cycle in Cryogenic Applications

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ABSTRACT

Cryogenics is the study and application of very low temperatures, typically below -150°C (-240°F). It has numerous applications in various fields, including science, technology, medicine, and industry, such as preserving biological materials, producing industrial gases, and powering rocket engines. Although many thermodynamic cycles have been attempted for producing low temperatures, the Claude cycle is a widely adopted thermodynamic cycle used for liquefying gases, particularly air. It operates through a combination of isentropic expansion and heat exchange techniques. This project aims to study and improve the performance of the Claude cycle by examining the influence of design parameters. This Claude cycle utilizes a combination of the Joule-Thompson expansion through a valve and expansion through a turbine, which results in higher efficiency compared to simple cycles like the Linde cycle. In this report, the thermodynamic analysis of each component, including compressors, heat exchangers, and expansion devices, is discussed in detail. Simulation results and performance analysis demonstrate the effectiveness of the Claude cycle in achieving the low temperature necessary for gas liquefaction. The report also explores the potential improvements to increase the cycle efficiency and reduce energy consumption. An initial thermodynamic analysis of the Claude cycle was carried out using Air, Hydrogen, and Helium as working fluids. At a pressure ratio of 200:1 and at an initial temperature of 300K, the coefficient of performance (COP) was found to be 0.165 for air, 0.00153 for Helium, and 0.0119 for Hydrogen. Out of the two working fluids studied other than air, Hydrogen showed better COP. The performance of Claude cycle with Hydrogen as the working fluid was analysed across the temperature range from 300 K to 28.8K while maintaining the same pressure ratio. When the temperature is decreased from 300 K to 28.8 K (which is the boiling point of Hydrogen) the COP is significantly increased to 0.25. This demonstrates the effectiveness of low operating temperature in improving the overall performance of the Claude cycle. This study provides a comprehensive understanding of the Claude cycle in practical applications of the Cryogenic engineering field.

Keywords: Cryogenic cycle, Claude cycle, Thermodynamic Analysis.

ICRCESMAP121

Investigation of The Mechanical Properties of Bamboo Fiber and Fly Ash Powder Reinforced Epoxy Composites

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ABSTRACT

Glass fiber is widely used in composites for its high strength and versatility; however, it is more expensive, denser, and less eco-friendly than natural fibers. By using an epoxy matrix, we can develop a hybrid natural composite that is not only cost-effective but also more environmentally friendly than those made with synthetic fibers. By integrating different materials, hybrid composites exhibit synergistic properties that cannot be achieved by individual constituents alone, rendering them indispensable in diverse engineering applications. These advanced composites benefit from the enhanced mechanical properties provided by natural fibers and particulates. Due to their stiffness, strength, cost-effectiveness, and biodegradability, hybrid composites are gaining popularity in polymer matrix composites. This study develops hybrid composites using bamboo sticks as the natural fiber and fly ash as a filler, combined with epoxy resin in a 30:70 ratio. After the fabrication of the hybrid composite test samples, mechanical tests were conducted in accordance with ASTM standards to evaluate their tensile, flexural, impact, and hardness properties.

Keywords: Bamboo Fiber, Fly Ash, Epoxy Resin, Mechanical Properties.

ICRCESMAP122

Fabrication and Mechanical Characterization of Epoxy-Based S Glass/Kevlar Fiber Reinforced Hybrid Composites Filled with Graphite Powder

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ABSTRACT

The current research aims to develop epoxy-based S-Glass/Kevlar fiber reinforced hybrid composites filled with graphite powder. Hybrid composite are fabricated by hand layup method and mechanical characterization is carried out as per the ASTM standards. It is observed that 10% of graphite powder filled epoxy is effectively reduced the weight of the composites in comparison with non-filled hybrid composites. On filler addition, the impact strength of the composite shows maximum at 5% of filler and tends to decrease further. The tensile capacity of the composites is increased by 23% and 13.6% and the flexural strength increased by 4.5% and 4.12% when 5% and 10% of filler added to composites, respectively compared to S-glass/Kevlar/epoxy composites. The present research aims to process and characterize the hybrid composites based on S-glass based hybrid fiber with Kevlar fiber and epoxy resin for thermal and mechanical properties incorporation of solid graphite powder. Many polymers based composites have glass transition temperature in the range of 100–240 °C, so that they are said to possess good thermal stability. This paper presents an effort undertaken to understand the effect of glassy fiber addition to composite systems on thermal conductivity of composites. The densified composites show improvement in fracture toughness and tensile strength at the cost of toughness.

Keywords: Mechanical Characterization, Fabrication Techniques, Fiber-Reinforced Polymer (FRP) Composites, Hybrid Composites.

ICRCESMAP123

Efficient Detection of Diabetic Retinopathy Using Dia-Net

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ABSTRACT

Diabetes is one of the leading fatal diseases globally, putting a huge burden on the global healthcare system. Early diagnosis of diabetes is hence, of utmost importance and could save many lives. However, current techniques to determine whether a person has diabetes or has the risk of developing diabetes are primarily reliant upon clinical biomarkers. In this article, they propose a novel deep learning architecture to predict if a person has diabetes or not from a photograph of his/her retina.

Keywords: Dia-Net, CNN, Mobile Net.

ICRCESMAP124

Improving the Productivity of a Double Slope Solar Still by Integrating a PMMA Fresnel Lens: Experimental Approach

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ABSTRACT

This study investigates the performance enhancement of a Modified Double Slope Solar Still System (MDSSS) through the integration of a polymethyl methacrylate (PMMA) Fresnel lens under the climatic conditions of Chengalpattu, India. The experimental setup evaluates the impact of solar concentration on basin water temperature, glass cover temperature, freshwater yield, and system efficiencies at three different basin water depths (10 mm, 20 mm, and 30 mm). The Fresnel lens was oriented in the north–south direction with tilt angles ranging from 0° to 60° to optimize solar capture. Results show that the incorporation of the Fresnel lens significantly increases basin water temperatures (by 8–10 °C), glass cover temperatures, and cumulative freshwater yield across all tested depths, with a maximum yield of approximately 6.0 L/m² recorded at 10 mm depth. Energy and exergy analyses reveal notable efficiency improvements in the lens-assisted configuration, with energy efficiency reaching up to 87% and exergy efficiency improving by up to 8% compared to the system without the lens. These findings confirm that the use of a Fresnel lens effectively boosts solar distillation performance by enhancing thermal energy concentration, particularly in systems operating with shallow water depths. The proposed enhancement offers a viable solution for increasing freshwater production in passive solar desalination systems.

Keywords: Solar Still, Basin Water Depth, Fresnel Lens, Solar Radiation, Water Quality.

ICRCESMAP125

Study of Thermal and Mechanical Properties in Al-Mg Alloys for Lightweight Thermal Applications

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ABSTRACT

Aluminium and Magnesium alloys are highly valuable due to their mechanical strength, corrosion resistance, and machinability, making them ideal for lightweight applications in aerospace and automotive thermal systems. This study investigates the thermal and mechanical behaviour of aluminium-magnesium (Al-Mg) alloys with varying magnesium content. Two alloy compositions Al 90% + Mg 10% (Sample 1) and Al 80% + Mg 20% (Sample 2) were analysed using a guarded hot plate apparatus for thermal conductivity, Brinell hardness testing, tensile strength measurement, and optical microscopy for microstructural evaluation. Results showed that Sample 1 exhibited higher thermal conductivity due to a finer and more uniform microstructure, while Sample 2 demonstrated superior mechanical properties such as higher hardness and tensile strength, attributed to solid solution strengthening and refined grain structure. Microstructural analysis revealed that increased magnesium content promotes grain refinement and precipitate formation, affecting both heat transfer and mechanical performance. The findings highlight the critical role of alloy composition and microstructure in tailoring Al-Mg materials for lightweight thermal and structural applications.

Keywords: Aluminium Alloy, Microstructural Analysis, Thermal Conductivity, Hardness, Temperature Distribution.

ICRCESMAP126

Integrating AI Tools in Science Education to Enhance Communication & Conceptual Understanding

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ABSTRACT

The study aims to examine the impact of integrating AI tools in science education on students' communication skills and conceptual understanding. Employing a quantitative survey design, data were collected using structured questionnaires from a sample of 100 science teachers and 300 secondary school students representing various types of schools across South Karnataka. The findings indicate that the integration of AI tools significantly enhances science learning by improving students' communication skills and promoting greater conceptual clarity. Based on these outcomes, the study recommends comprehensive teacher training in the effective use of AI tools, along with the integration of AI-supported strategies into the science curriculum, to enhance teaching and learning processes.

Keywords: Cylinder Block, V8 Engine, Design, Analysis.

ICRCESMAP127

Solid-State Electrolytes: A Path to Safe and High-Capacity Lithium Based Batteries

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ABSTRACT

This paper presents a comprehensive overview of solid-state batteries (SSBs) as a transformative technology in energy storage. By replacing the conventional liquid electrolytes in lithium-ion batteries (LIBs) with solid-state electrolytes (SSEs), SSBs aim to address critical challenges in energy density, safety, and cycle life. The study delves into the core materials used in SSB construction—specifically sulfide-, oxide-, and polymer-based electrolytes—examining their chemical and structural properties, electrochemical performance, and compatibility with lithium metal anodes. The paper further explores practical applications of SSBs, focusing on electric vehicles (EVs) and portable electronic devices, where demand for safer, longer-lasting, and higher-capacity batteries is growing rapidly. A comparative analysis with conventional LIBs underscores both the advantages of SSBs (such as enhanced thermal stability and energy density) and the current limitations (such as interfacial resistance and manufacturing challenges). The discussion concludes by outlining future directions for research and development necessary for commercial scalability and widespread adoption of SSBs.

Keywords: Solid-State Batteries (SSBs), Solid-State Electrolytes (SSEs), Lithium-Ion Batteries (LIBs), Lithium Metal Anode, Sulfide Electrolytes, Oxide Electrolytes, Polymer Electrolytes, Electric Vehicles (EVs).

ICRCESMAP128

Smart Surveillance System for Smart Farming

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ABSTRACT

This paper develops an IOT smart surveillance system, aimed at providing real-time monitoring and security solutions for agricultural applications. Unfortunately, many of the crops get damaged due to theft and in most cases do not survive due to weather changes. The paper works through integration of Arduino with the different sensors such as that of soil moisture and DHT11 compression with object detection along with automation like rain shed mechanism to provide real-time security and environmental monitoring for these related fields. That is on the flip side, to reduce human interruption, make good on the resource, and keep the crops in good health which all contributes to modernizing and sustaining agriculture. Such protection includes a rain shed mechanism for shielding crops from unanticipated weather occasions and soil moisture sensors for optimizing water application. The DHT11 monitors temperature and humidity to get an optimum environment for crop growth. In the case of security, the object detection takes photos and sends them via mobile to farmers, making surveillance real time. Therefore, the entire system intends to minimize human intervention, optimally utilize resources, and ensure healthy security of crops, thus modernizing agricultural practices while making environmental issues sustainable.

Keywords: Arduino, Object Detection, DHT11 Sensor, Soil Moisture Sensors, Real-Time Security.

ICRCESMAP129

AI-Powered Multilingual Assistant

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ABSTRACT

This paper presents the Multilingual Assistant chatbot, a smart tool designed to improve how students interact with their college and make administrative tasks easier. Built using Python and JavaScript, the chatbot includes useful features like support for multiple languages, voice chat, answers to common questions, appointment booking, and event reminders. It uses natural language understanding and simple automation to make communication quicker, clearer, and more convenient. The chatbot is especially helpful for students who speak different languages, creating a friendly and easy-to-use learning environment. It also takes pressure off staff by handling routine tasks. Overall, this system shows how AI can make a real difference in education today.

ICRCESMAP130

Development of an Automated Commercial Batter Grinder with Integrated Payment System

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ABSTRACT

This paper presents the design and development of an automated commercial batter grinder integrated with a smart weighing and payment system. The system utilizes a load cell connected through an HX711 signal-conditioning module for precise weight measurement. An Arduino Uno, based on the ATmega328P microcontroller, serves as the core control unit for processing and system automation. A user-friendly Android application is developed to enable seamless and secure payment transactions. To validate the proposed concept, a fully functional working model was developed and successfully tested. The solution automates the batter dispensing process, ensuring accuracy in quantity and enhancing user convenience in commercial environments. It reduces manual intervention and supports cashless operations, making it ideal for locations such as apartment complexes, hostels, and retail outlets.

Keywords: Load Cell, Arduino, Integrated Payment System, Commercial Automation.

ICRCESMAP131

Improving The Ability to Write Explanatory Texts Using Picture Media in Grade VII Students of SMP Negeri Satap Sabura

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ABSTRACT

The purpose of this classroom observation action is to improve the ability of students of SMP Negeri Satap Sabura in writing explanatory texts. This action was carried out by 32 students of grade VII of the school. This research is a classroom action research. This research was carried out in two cycles, namely the action process cycles I and the action process cycle II, each of which consists of four stages, namely planning, action, observation, and reflection. The pre-cycle is data obtained based on the results of observations and discussion activities with class subject teachers. In the pre-cycle, a score of 61.7 was obtained, in cycle I the average student score was 72.18, while in cycle II the average student score was 86.09. All students of grade VII of SMP Negeri Satap Sabura were the subjects of this research. The explanatory text writing skill test was in the form of a test tool, while non-test tools included observation sheets, interview sheets, and documentation guidelines.

Keywords: Explanatory Text, Image Media, Improvement.

ICRCESMAP132

Identity Politics as A Tool for Winning Elections: A Critical Review of Democratic Practices

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ABSTRACT

This research focuses on the use of identity politics strategies in the electoral process in Indonesia and its influence on the quality of democracy and social solidarity. The approach used is qualitative with the method of literature study, examining various sources such as books, scientific journals, reports and mass media. The findings suggest that identity politics used in a systematic and manipulative manner can reinforce social divisions and increase polarization between groups of people. The use of this strategy has the potential to threaten democratic principles that uphold equality and inclusivity, while contributing to social conflicts in the life of the nation and state. Therefore, reform efforts are needed in the field of political strategy and election regulation so that more ethical and inclusive democratic practices can continue to develop and strengthen national cohesion.

Keywords: Identity Politics, Indonesian Democracy, Social Polarization, Political Reform.

ICRCESMAP133

Effectiveness of E-Government Implementation in The Population and Civil Registration Service of Majene Regency

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ABSTRACT

E-government Population and Civil Registration Office is an application that can be used to carry out transaction processes and monitor the creation of documents in the government at the Population and Civil Registration Office. E-government Population and Civil Registration Office is one of the application services from the Smart City program designed by the Majene Regency government. This smart city is an effort by the government to develop an effective, efficient, and transparent government system by optimizing the use of the Information Technology system. This e-government has been implemented in the Population and Civil Registration Office. So the unit of analysis in this study is the application of e-government in the Population and Civil Registration Office of Majene Regency. The type of research used by the author in this study is descriptive qualitative. Data collection techniques are interviews, observations and documents related to the research. Data analysis techniques in this study were carried out qualitatively. The results of this study explain that the application of e-government in the Population and Civil Registration Office has been quite effective. This is measured based on the effectiveness measurement indicators according to Gibson.

Keywords: Effectiveness, E-Government, Public Service.

ICRCESMAP134

Village Digital Innovation

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ABSTRACT

Village digital innovation is a strategic effort in facing the era of digital transformation by utilizing information and communication technology to improve the quality of public services, community empowerment, and economic growth in rural areas. The application of the concept of a digital village includes the development of an integrated village information system, online administration services, marketing of village superior products through e-commerce, as well as increasing access and digital literacy of village communities, this innovation aims to accelerate the process of village community services. Innovation aims to accelerate the village government service process, strengthen citizen participation, and support sustainable development. Various village digitalization models that have been implemented show that digital technology is not just a tool, but also a catalyst for social, economic, and cultural change in the village. The main challenges faced include technological infrastructure, human resource capacity, and the community towards new technologies, which can be overcome through training, mentoring, and supportive policies. Case studies in several villages in Indonesia show that village digital innovation is able to significantly improve government efficiency and the quality of life of village communities.

Keywords: Digital, Innovation, Village.

ICRCESMAP135

Challenges for The Government in Realizing Child Friendly School

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ABSTRACT

Child Friendly School (SRA) is a program that aims to create a comfortable school environment and become the second home for children. This program ensures that children's rights are met and provide protection for them. The Indonesian government through the Ministry of Women's Empowerment and Child Protection (KemenPPPA) has actively encouraged the implementation of Child Friendly Schools (SRA) in various regions. This aims to ensure that children's rights are guaranteed as long as they are in the school environment, so that the safety and security of children is always maintained. This study aims to find out the challenges faced by the government in realizing child friendly schools. This study uses qualitative research methods and data is collected through relevant written sources, such as scientific journals, articles, and official government documents. The results showed that the government in realizing this child friendly school was still faced with various challenges. The challenges faced include socialization and training that are not sustainable, limited resources, budgets and facilities and infrastructure, lack of active participation from schools, and weak cooperation between stakeholders and policy implementers.

Keywords: Implementation, Government, School, Child Friendly.

ICRCESMAP136

Transformation of Public Service of Local Government in Digital Era

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ABSTRACT

Digital transformation in local government public services is a must in today's digital era, driven by public demand for accessible, fast, accurate, and quality services. E-government is an important element in improving the efficiency and transparency of public services, with examples of services such as resident registration, licensing, tax payment, and healthcare accessible online.However, the implementation of government digitalization has faced a variety of challenges, including infrastructure gaps, lack of digital literacy, resistance to change, regulatory unpreparedness, cybersecurity threats and data privacy, budget and resource imbalances, lack of coordination between government institutions. and low public participation. This study applied a descriptive qualitative approach to analyzing changes in government public services in the digital age, with data obtained from a variety of reliable sources such as previous studies, journals, and academic books. Analysis is carried out to understand the implementation of digital-based services in Indonesia, which is currently still under development and requires improvement.

Keyword: Transformation, Public Service, E-government, and Digital.

ICRCESMAP137

Accelerating E-Commerce Growth through Digital Transformation: Strategies, Technologies, and Customer-Centric Innovations in the Post-Pandemic Era

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ABSTRACT

The rapid evolution of digital technologies has fundamentally reshaped the e-commerce landscape, driving unprecedented changes in consumer behavior, operational processes, and business models. This review synthesizes current research on e-commerce digital transformation, focusing on the integration of AI, cloud computing, and customer experience strategies. Despite significant advancements, challenges persist around technology adoption, data privacy, and organizational readiness. By examining recent empirical studies and theoretical models, this paper highlights the critical factors influencing successful transformation and identifies key research gaps. Future directions emphasize the role of emerging technologies such as blockchain and augmented reality in enhancing e-commerce ecosystems. Readers can expect a comprehensive overview of technological enablers, organizational dynamics, and customer-centric innovations shaping the future of digital commerce.

Keywords: E-Commerce, Digital Transformation, Artificial Intelligence, Cloud Computing, Customer Experience, Technology Adoption, Organizational Change.

ICRCESMAP138

Optimizing Order Management and Billing Processes Through SAP Driven ERP Systems: A Technology-Oriented Approach

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ABSTRACT

Optimization of ordering and bill processing has become critical in the operation and financial success of modern business enterprises. This review paper discusses the role of SAP-enabled Enterprise Resource Planning (ERP) systems in transforming the ordering and billings processes through a technologically advanced approach. It systematically reviews empirical researches, conceptual models as well as real-life case studies demonstrating how modules such as SAP SD and FI when integrated with automation and artificial intelligence reduce processing time tremendously, improve invoice accuracy, and increase levels of customer satisfaction. A proposed theoretical framework integrating SAP ERP, AI and RPA has also been added through experimental results and case study findings. The paper also touches upon ERP optimization directions in the future including Generative AI, blockchain and sustainable ERP paradigms. The review concludes that even as SAP ERP has totally transformed ordering and billings processes, their continuous evolution through intelligent technologies needs to be ensured for value optimization and facilitation of agile enterprise practices.

Keywords: **SAP ERP; Order Management Optimization; Billing Process Streamlining; RPA; Artificial Intelligence; Predictive Analytics; Intelligent ERP; SAP S/4HANA; Order-to-Cash Cycle; Digital Transformation.**

ICRCESMAP139

Artificial Intelligence in the Fight Against Cyber Fraud: Challenges, Advances, and Future Directions

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ABSTRACT

Cyber fraud is exploding, literally. Digital finance's boom has just made us even more vulnerable, meaning we desperately need security systems that are not just smart, but truly adaptive. Thankfully, Artificial Intelligence (AI) has emerged as our strongest defense here, capable of real-time fraud detection, spotting anomalies, and even predicting what's coming next. This isn't just another look at AI; we're diving deep into the actual techniques that have tackled cyber fraud over the last ten years. That means exploring everything from supervised and unsupervised learning to the nuances of deep learning and hybrid methods. You'll see what really works from real-world datasets, and we'll unpack why certain models shine. We're even laying out a fresh framework designed to seriously boost both performance and transparency. Of course, the path isn't smooth. We tackle the tough stuff: adversarial attacks, those tricky model biases, and the big ethical questions. And as for what's next? We've charted the most exciting paths forward, highlighting where explainable AI, federated learning, and genuine ethical compliance will be game-changers. Consider this your essential guide if you're a researcher, developer, or policymaker committed to locking down our digital world with AI.

Keywords: Artificial Intelligence, Cybersecurity, Cyber Fraud Detection, Machine Learning, Deep Learning, Explainable AI, Adversarial Attacks, Anomaly Detection, Data Privacy, Federated Learning.

ICRCESMAP140

Ethical and Security Risks of Autonomous AI Systems

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ABSTRACT

As AI systems grow more independent, the challenges of keeping them both ethical and secure are only getting tougher. From self-driving cars and military drones to algorithms making real-world decisions, these technologies often operate with little—or no—human input. This paper takes a close look at the risks that come with that shift. On the ethical side, we're talking about things like bias, unclear accountability, and the risk of sidelining human judgment. On the security front, there's the threat of adversarial attacks, hacking, and deeper system flaws that could be exploited. By reviewing what's already out there—research, case studies, real-world examples—we aim to unpack how these risks are currently being managed. More importantly, we offer ideas on how future systems can be built with stronger guardrails, both in terms of tech and governance.

Keywords: **Autonomous AI, Ethical Risks, AI Security, AI Governance, Bias in AI, AI Accountability, Adversarial Attacks, Machine Ethics.**

ICRCESMAP141

Enhancing E-Commerce Fraud Detection Using AI-Driven Cybersecurity Systems

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ABSTRACT

E-commerce has grown a lot, and with that, fraud has too. Cybercriminals are getting smarter, and the usual tools we use to stop them aren't enough anymore. This paper looks at how AI might help fix that. It goes into how AI—things like machine learning, deep learning, and natural language processing—is being used to catch odd behavior, spot risky transactions, and even guess what might go wrong before it does. The paper also looks at how these AI methods hold up against older approaches and points out where they actually work better. But it's not all smooth. There are problems, like keeping user data private, understanding how AI makes choices, and dealing with fraud tactics that keep changing. The paper also shares a layered AI setup and some real examples from big e-commerce companies. In short, AI seems to be helping. These systems can react faster and adjust as new types of fraud show up. And with online shopping only getting bigger, tools like this are becoming kind of necessary.

Keywords: **Artificial Intelligence; Cybersecurity; E-Commerce Fraud; Machine Learning; Threat Detection.**

ICRCESMAP142

The Role of Artificial Intelligence in the Digital Transformation of E-Commerce: Opportunities and Challenges

Saurabh Mittal

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ABSTRACT

AI has really changed the way online shopping works, and it's happened pretty fast. Now, it’s not just about showing similar products—it’s helping businesses figure out what people might need or want, even before the customers know it themselves. You can see its impact almost everywhere in e-commerce, and it’s becoming more obvious over time. This paper looks at a bunch of different ways AI is shaping the world of digital commerce. There’s a lot to like—it’s made customer service quicker, helped companies run smoother, and made it easier to spot trends early on. But there’s another side to it, too. Not everything is simple. There are real concerns about how personal data is used, whether AI is always being used ethically, and how tough it can be to actually put AI into systems that were built long before it existed. To understand what’s actually going on, we looked at different kinds of sources—things like academic research, industry reports, and a few visual data sets. What did we find? AI clearly helps e-commerce in a lot of ways. But if companies aren’t thoughtful about how they apply it, or if it doesn’t really fit with their long-term goals, they might not see the full benefit. In some cases, it could even create more issues than it solves.

Keywords: **Artificial Intelligence, Digital Transformation, E-Commerce, Personalization, Machine Learning, Chabot’s, Data Analytics, Ethical AI, Predictive Modeling.**

ICRCESMAP143

Enhancing the Scalability and Efficiency of Distributed Machine Learning Frameworks in Heterogeneous Cloud Environments

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[2]Independent Researcher, University of North Carolina at Charlotte

ABSTRACT

Distributed machine learning (DML) systems are instrumental to efficiently train large models at scale, especially at large data scales and leveraging smarter automation. However, traditional DML platforms work quite bad in heterogeneous cloud environments in that the computing resources on the cloud are of various structure, scale and speed. This paper explores possible approaches for scaling and optimizing distributed machine learning frameworks to be able to run on various infrastructures. To address this challenge, we present a strategic approach that combines adaptive resource scheduling, dynamic workload balancing, and topology-aware communication does it to improve the performance of DML operations in multi-cloud and hybrid deployments. The architecture enables fine-grained management of compute, memory and data movement thanks to smart orchestration layers and containerized infrastructures including Kubernetes and Docker. Mechanisms are included at the system level, such as hardwareconscious algorithms, fault tolerant checkpointing, and asynchronous gradient updates to reduce latency and improve resource utilization. We further benchmark different DML frameworks, such as parameter server model and AllReduce method, in diverse complex environments, including the strong heterogeneous ones. Our experimental results demonstrate that: (1) infrastructure-aware scheduling susceptibility and adaptive parallelism can reduce time to train by up to 45%—without compromising model accuracy or system reliability. Finally, overall this work represents a strong foundation for enhancing distributed machine learning across heterogeneous clouds and offers key takeaways for those who are looking to scale AI solutions in a cost-effective manner. It also shines a light on infrastructure heterogeneity as both a barrier and a positive opportunity in the future of cloud-native machine learning.

Keywords: Distributed Machine Learning(DML), Heterogenous Cloud Environments, Scalability.

ICRCESMAP144

A Decade of Progress in Front-End Engineering: A Review of Trends, Technologies, and Challenges in Modern Software Development

Harish Reddy Bonikela

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ABSTRACT

Over the last decade, front-end engineering has undergone rapid metamorphosis, a shift from quickly scribed and styled methods into a mature discipline with modular frameworks, accessibility check, performance touch-up, and developer experience (DX). The review has bundled the latest literature and empirical research from five key fronts of modern front-end engineering: design approach, frameworks and technology, performance optimization, accessibility, and developer productivity. Emerging trends and unresolved issues in tooling, standard adoption, and cross-platform support are recognized from comparative analysis and empirical evidence. The study attempts to present a theoretical framework to guide further research and practice. At last, the article presents a generic frame of reference that developers, researchers, and policymakers may use to test and improve front-end practice against an evolving technological backdrop.

Keywords: Front-End Engineering, Performance Optimization, React, VUE, Angular, Progressive Web Apps (PWAs), SSR.

ICRCESMAP145

Optimizing Enterprise Intelligence: A Strategic Framework for Integrating Salesforce with Modern Cloud-Based Data Warehouses for Real-Time Unified Analytics

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[1]Independent Researcher, University of Madras, Chepauk, Chennai, Tamil Nadu, India

[2]Independent Researcher, Masters in Information Technology Managment from WGU (online)

ABSTRACT

Organizations need to turn silced data into real-time actionable intelligence in the modern data-driven economy to stay ahead of their competition. Now that organizations are rapidly embracing hybrid and multi-cloud environments, integrating customer relationship management (CRM) systems such as Salesforce with today's modern cloud-based data warehouses (e.g., Snowflake, BigQuery, Redshift) is more important than ever. This paper provides a strategic model to leverage the full potential of enterprise intelligence by linking Salesforce with cloud-based data warehouses for real-time, hybrid analytics. The framework focuses on data ingestion, transformation, and synchronization between systems with tools like MuleSoft, Fivetran, and native connectors.It examines the value of a scalable, event-driven architecture and metadata management to maintain data consistency, governance, and security. Through the integration, two-way data flow is achieved, and the framework addresses operational analytics within Salesforce and broader insights across data platforms. It also demonstrates the importance of AI and machine learning models over unified data sets for predictive analysis, intelligent forecasting, and personalized customer engagement.The paper considers implementation patterns such as change data capture (CDC), API orchestration, and real-time streaming and discusses issues like data latency, schema evolution, and compliance. With this connection, businesses can bring together disconnected datasets, remove data silos, and enable decision-makers with complete and timely views. Ultimately, the recommended framework enables a shift from reactive reporting to proactive intelligence—helping businesses work smarter and faster. This strategic alignment of CRM and data infrastructure transforms Salesforce from a transactional system into a real-time business intelligence powerhouse.

Keywords: Artificial Intelligence (AI), Customer Relationship Management(CRM), Change Data Capture.

ICRCESMAP146

Next-Gen Quality Assurance: Leveraging AI, Automation, and DevOps for Scalable Software Excellence

Kunal Parekh

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ABSTRACT

As software delivery accelerates in scope and scale, traditional Quality Assurance (QA) methods are proving insufficient. This review explores the evolution and future of QA through the integration of Artificial Intelligence (AI), automation, and DevOps practices—collectively termed Next-Gen QA. We synthesize findings from key research and industry implementations to highlight how AI-driven test generation, machine learning-based anomaly detection, and continuous testing pipelines have transformed the QA landscape. We also present a conceptual model for scalable QA and validate it through empirical results. The review concludes by outlining future directions, including explainable QA systems, continual learning agents, and QA-AIOps integration. This paper serves as a guide for researchers and practitioners striving to deliver high-quality software at scale.

Keywords: Next-Gen Quality Assurance, AI in QA, Automated Testing, DevOps, Machine Learning, Test Automation, CI/CD, Anomaly Detection, Explainable AI, Software Testing, AIOps.

ICRCESMAP147

Navigating the Nexus of Digital Transformation and Business Intelligence: Impact and Innovations in Finance and Retail Sectors

Laxmi Vanam

Independent Researcher, Missouri University of Science and Technology, USA

ABSTRACT

Digital transformation (DT) and business intelligence (BI) are critical drivers of competitiveness and innovation in the finance and retail sectors. In this review, the current research evidence on how DT projects with added BI tools and technologies influence business performance, customer satisfaction, and operational effectiveness is discussed. Improvement in performance aside, concern areas remain inthe context of data integration, security, and organizational readiness. This research presents a conceptual framework representing central factors to successful DT-BI integration and suggests empirical findings supporting improved business performance. Future research directions aim at leveraging novel AI technologies and ethics dilemmas to better achieve the advantages of DT and BI. This paper offers insights useful to researchers and practitioners interested in mapping the intricate digital business landscape of the finance and retail industries.

Keywords: Digital Transformation, Business Intelligence, Finance, Retail, Data Analytics, Customer Satisfaction, Operational Efficiency, Artificial Intelligence.

ICRCESMAP148

Designing Developer Platforms for Cross-Cloud Portability and Scale

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ABSTRACT

The recent ramp-up in multi-cloud strategy deployment has forced a redesign of the developer platform in terms of portability and scalability across the heterogeneous cloud world. In this review, we explore architectural and operational considerations for the deployment of developer platforms that run without compromise across multiple cloud providers. It provides a multidimensional view of a framework that includes architectural abstraction, developer experience, data management, performance engineering and security integration. Container orchestration, infrastructure as code and service mesh are explored to see how they enable interoperability and system consistency. The review additionally discusses the problems of stateful application migration, data gravity and compliance; and emphasizes the necessity of intelligent automation and policy-based governance to conquer these challenges. The conversation is taken forward by emerging trends such as AI-driven orchestration, decentralized control planes and edge native deployments, which would define the future of cross-cloud platform architecture. These platforms funnel developer tooling and imbue it with intelligence, wrapped with intelligence into operational workflows, allowing for enterprises to leverage their multi-cloud ecosystems to its fullest potential: resilience, cost optimization and regulatory agility. The review finds that innovation within this space will continue to drive the evolution of intelligent, scalable and autonomous cloud native platforms able to deal with increasing distributed application complexity.

Keywords: Cloud-Native Scalability; Cross-Cloud Portability; Developer Platforms; Intelligent Orchestration; Multi-Cloud Architecture; Platform Abstraction.

ICRCESMAP149

Quantum Machine Learning Approaches for Real-Time Market Pattern Recognition in High-Frequency Trading: A Banking Sector Application

Hari Krishn Gupta[1], Naveen Kumar Vayyasi[2], Jagadeesh Thiruveedula[3]

[1]Independent Researcher, University of Southern California

[2]Independent Researcher, Jawaharlal Nehru University

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ABSTRACT

Recognizing market trends in HFT gets simpler and faster thanks to quantum machine learning (QML) which also has the power to exceed classical model boundaries. Using quantum kernel methods and variational quantum circuits, QML can analyze high-dimensional financial information such as tick-by-tick data and order book samples, in the superposition state simultaneously. Comparative work proves that quantum-enhanced models have better accuracy, can detect patterns better and perform faster decisions on near-term quantum devices than classical ones. To be useful in banking-sector HFT, QML needs to easily connect with all existing internal information flows and trades. Essentially, users need to address hardware noise, guard against decoherence on NISQ machines, balance circuit complexity with tight time goals and guarantee scalable training for a quantum-classical mix. Latest progress in handling errors, such as zero-noise extrapolation, and adapting features has shown that models become stronger under realistic kinds of noise, although greater development is necessary to reach a production-ready level of reliability. Here, we bring together the most current work in QML for HFT, including different approaches, both software and hardware and ways to add quantum components to classical optimization loops. Outcomes from benchmarking are discussed, as well as the differing designs in kernel and variational approaches and significant parts of regulations related to quantum-assisted trading. In conclusion, a plan for more detailed studies is given, underlining how important consistent performance measures, detachable frameworks that can be used together and cooperation between technical fields are to get QML from research trials to compliant solutions in high-speed stock markets.

Keywords: Quantum Machine Learning; High-Frequency Trading; Market Pattern Recognition; Quantum Kernel Methods; Variational Quantum Circuits; Banking Sector; Low-Latency Inference; NISQ Hardware.

ICRCESMAP150

Micro Service Architecture and Platform-Independent Middleware Integration: A Humanized Review

Sanghamithra duggirala Duggirala

Independent Researcher, Governors State University, University Park, IL

ABSTRACT

Microservice architecture (MSA) offers a modular approach to building scalable and maintainable software systems. However, integrating microservices across heterogeneous platforms remains a significant challenge. This review explores the role of platform-independent middleware in enabling seamless communication, orchestration, and management of microservices. We present a conceptual architecture that leverages tools such as gRPC, Kafka, service meshes, and observability stacks, ensuring interoperability, resilience, and operational efficiency. Through experimental results and case studies, we demonstrate the performance benefits of middleware integration. The paper concludes with future directions for AI-native microservices, edge-cloud continuum support, and middleware standardization, positioning middleware as the backbone of the next-generation software ecosystem.

Keywords: Microservice Architecture, Middleware Integration, Platform Independence, Service Mesh, API Gateway, gRPC, Kafka, Istio, Observability, Edge Computing, Zero Trust Security, Multi-Cloud Orchestration.

ICRCESMAP151

Optimizing Authorization and Financial Services Innovation: Strategic Approaches for Senior Product Managers in Payments, SME Lending, and Supply Chain Financing

Shruti Khandelwal

Independent Researcher, Carnegie Mellon University, Pittsburgh, USA

ABSTRACT

With the dynamic world of financial services today, payment authorization processes need to be optimized while innovation takes place in SME lending and supply chain finance. This review examines strategic levers like multi-acquiring, partial authorization, backup payment instruments, and strong customer authentication, and complementary financial product integration. By drawing out the latest developments and empirical evidence, the research illustrates how each of these measures individually refines transaction success rates and fraud risk reduction while increasing financial inclusion. Regulatory compliance and customer experience trade-offs are addressed, and the potential future directions in the form of emerging trends in AI-based decision-making and real-time analysis are showcased. This review is aimed to assist senior product managers with a systematic framework to address the entangled nexus between payments and financial services innovation and drive business expansion and customer satisfaction.

Keywords: Payment Authorization Optimization, Multi-Acquiring, Partial Authorization, Backup Payment Instruments, Strong Customer Authentication (SCA), SME Lending, Supply Chain Financing, Financial Services Innovation, Fraud Detection, AI in Finance.

ICRCESMAP152

AI-Powered Cybersecurity: A Unified Approach to Protecting Enterprise, Cloud, and SaaS Applications

Sudha Rani Pujari

Independent Researcher, University of the Cumberlands, Williamsburg, KY

ABSTRACT

With the advent of Artificial Intelligence (AI), cybersecurity paradigms have been turned on their head as AI was engineered to help address the increasing shortfalls of traditional static defense mechanisms. With cyber threats becoming more dynamic, more sophisticated and more multifaceted, AI becomes a core structural element in modern security architecture that supports increased ability to detect, predict and respond to threats in a dynamically adaptive way. This paper provides a critical review of the potential to integrate AI within a number of cybersecurity domains, such as endpoint and network protection, identity management, security of the multi-cloud infrastructure, SaaS ecosystem and threat intelligence systems unification. Real-time anomaly detection, behavioural analytics and automated incident response are all made possible through AI technologies such as machine learning and deep learning models, improving threat mitigation speed and accuracy. In addition, AI can play a role in improving the predictability of defence via data-driven models and feedback systems, a step towards more proactive than reactive security postures. Enabled by the capacity for exacting visibility and policy enforcement in cloud-native and SaaS environments in which traditional controls fail. The superiority of the performance of AI to discover malware, to detect the command-and-control traffic and to enforce identity-based access controls is validated by studies in Computer & Security, Information Sciences and Expert Systems with Applications. However, ethical and operational challenges associated with AI-driven cybersecurity, such as data bias and privacy, adversarial attacks, model interpretability and their confluence to identify key deviations from the ideal model also mark the road to deployment. In addition, the paper also demonstrates the transition from autonomous security operations to self-healing systems, which have the potential to transform incident response, allowing machines to learn, adapt and remediate those threats with little or no human intervention. These innovations are important for real-time protection in distributed and cloud-rich environments. This paper utilizes an extensive review of academic literature and empirical studies to outline how AI reinforces existing cybersecurity mechanisms and enables building foundations for next-generation cyber defence architecture that is intelligent, future-ready and resilient.

Keywords: AI-Driven Cybersecurity; Anomaly Detection; Multi-Cloud Security; Self-Healing Security Systems; Threat Intelligence Automation.

ICRCESMAP153

Enabling Rapid Application Development through Reusable Cloud Process Orchestration and Workflow Automation Frameworks

Sunil Sudhakaran

Independent Researcher, Mahatma Gandhi University, Kottayam, Kerala, India

ABSTRACT

Cloud-native applications increasingly depend on process orchestration and workflow automation frameworks to enable rapid, scalable, and resilient development practices. This review provides a comprehensive examination of reusable orchestration patterns and automation frameworks, highlighting their application in modern software delivery pipelines. We present a theoretical model for workflow composition and execution, supported by empirical benchmarks from tools like Zeebe, Argo, Apache Airflow, and AWS Step Functions. Key benefits include reduced development time, improved concurrency handling, and enhanced observability. The review concludes with a discussion on future research directions, including AI-driven workflow optimization, federated orchestration, and low-code platform evolution.

Keywords: Rapid Application Development, Workflow Automation, Cloud Orchestration, BPMN, Zeebe, Apache Airflow, AWS Step Functions, Argo Workflows, Reusable Templates, Low-Code, DevOps, Event-Driven Architecture.

ICRCESMAP154

AI Methods Used in Solar Energy Optimization Over the Last Decade

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Independent Researcher, West Bengal University of Technology (WBUT), Kolkata, WB, India

ABSTRACT

In light of the increased demand for renewable energy solutions, the application of Artificial Intelligence in solar energy has garnered attention and experienced development. In the last decade, AI methods like machine learning, deep learning, and reinforcement learning have improved solar power forecasting, solar predictive maintenance, and solar control systems to achieve heightened levels of efficiency and reliability. This review systematically integrates recent advances made in the context of applying AI to photovoltaic systems and pronounces major applications, challenges, and performance results. Although AI research has made helpful strides, other issues await solution, such as data heterogeneity, interpretability of AI systems, and real-time adaptability. The paper ends with a brief conclusion and suggestions regarding future work to resolve these issues and take full advantage of the possibilities endowed by AI in solar energy systems.

Keywords: Artificial Intelligence, Solar Energy Optimization, Photovoltaic Systems, Machine Learning, Predictive Maintenance, Reinforcement Learning, Energy Forecasting.

ICRCESMAP155

Validation-First Architectures: Ensuring Data Quality in Scalable Lakehouse Environments

Ravi Kiran Pagidi[1], Sarvesh Gupta[2], Suraj Dharmapuram[3], Ishu Anand Jaiswal[4]

[1]Independent Researcher, Jawaharlal Nehru Technological University

[2]Independent Researcher, Western Governors University

[3]Independent Researcher, Carnegie Mellon University

[4]Independent Researcher, University of the Cumberlands

ABSTRACT

In lakehouse environments, data quality checks are done right when data is ingested, so scalable rules are followed, anomalies are detected and a policy-based approach is used to produce analytics-ready data. They use ideas from data lakes and data warehouses and go further by checking each record instantly for errors and preventing bad ones from moving into further processing. Some of these methods are partitioned incremental techniques that divide and inspect constraints in parallel, machine learning models designed to find unusual data outliers and approaches that apply set guidelines and controls to services on any type of architecture. Tests have proven that dividing validation jobs can cut processing time to under a third, while continuing to maintain precise outcomes. Regardless, several significant issues are still present, including designing rules that respond to ongoing changes in data, making data validation happen fast throughout high-speed data streams and creating ways to tie together policies, metadata tracking and data lineage into one governance system. In the future, AI techniques are being developed to provide transparent insights when creating rules on the fly and for building validation pipelines that store all contextual information. Work is being done to design workflows that repair problems automatically when issues are found. The review's outline of the field and suggested areas for future study gives a clear path for building lakehouse frameworks that help maintain trustworthy and reliable computing on vast data collections.

Keywords: Lakehouse Architecture; Data Quality; Validation-First; Constraint Enforcement; Anomaly Detection; Governance; Data Pipelines.

ICRCESMAP156

Design Improvement and Structural Analysis of Centrifugal Pump Baseplate Using Finite Element Method

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ABSTRACT

The paper focuses on analyzing and improving the design of baseplate used for centrifugal pumps, based on commonly used customer order configurations. The existing baseplate showed several issues, such as low rigidity, weak stiffeners, and improper grouting, which led to problems like misalignment, distortion, and high vibrations. These issues were identified through vendor and customer feedback, as well as prior studies. To address them, a static structural analysis was carried out using the finite element method. Based on the results, improvements were made to the baseplate design. The revised design was then analyzed and compared with the original. The results are examined, and specific suggestions are made to improve the stiffness and dependability of pump baseplate.

Keywords: Baseplate Design, Static Structural Analysis, Directional Deformation, Equivalent Stress.

Mohammed Rafi <mohammed_rafi336@rcee.ac.in>

Collaboration Confirmation letter for your reference

3 messages

RSP SCIENCE HUB <coordinator.rspsciencehub@gmail.com> Sat, Oct 26, 2024 at 6:27 PM
To: Mohammed Rafi <mohammed_rafi336@rcee.ac.in>

Respected Dr. Raffi Mohammed Sir,

I've sent you the Collaboration letter for your reference. PFA

Kindly prepare a similar document on your College letterhead. The signatures of Principal Sir/Mam & HOD Sir/Mam are required on the letter.

Kindly do the needful

Thanks and Regards,

Ms. Sona D Solanki

Deputy Head, RSP RH

Collaboration Head

RSP Science Hub

Coimbatore, India

M- (+91) 9408151068

RSP International Conference Collaboration Confirmation Letter.pdf
106K

Mohammed Rafi <mohammed_rafi336@rcee.ac.in> Tue, Nov 5, 2024 at 11:26 AM
To: RSP SCIENCE HUB <coordinator.rspsciencehub@gmail.com>

Respected Shona Madam,
Greetings of the day
Please go through the collaboration acceptance letter....
Sorry for the delay madam
[Quoted text hidden]

Conference Proposal Acceptance Letter 2024-2025.pdf
423K

RSP SCIENCE HUB <coordinator.rspsciencehub@gmail.com> Wed, Nov 6, 2024 at 5:35 PM
To: Mohammed Rafi <mohammed_rafi336@rcee.ac.in>

Thankyou Sir
We will start further process
[Quoted text hidden]

PROPOSAL FOR INTERNATIONAL CONFERENCE IN ASSOCIATION WITH RAMACHANDRA COLLEGE OF ENGINEERING ELURU

To

Dr. Raffi Mohammed
Point of Contact Person-RSP Science Hub
Professor
Department of Mechanical Engineering
Ramachandra College of Engineering Eluru

Dear Dr. Raffi Mohammed,

With reference to our meeting discussion, Conference Hub clarifies the following points

1. Conference Hub will manage to get 60 papers (approx.) through the Database. There are **30 papers required from Institute side.**
2. By default, all the accepted papers will be published in **Open access, Google scholar indexed journal with crossref DoI number.**
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11. All the fee must be collected by RSP Science Hub team.

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Note: Host Institutions fee will be subject to vary based on registration count increases

Prepared by

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RCE/IAE/2024-25/03

Date: 04/11/2024

To
Ms. Sona. D. Solanki
Collaboration Head, RSP
Science Hub, Coimbatore,
Tamilnadu, India.

Subject: Proposal for International Conference Collaboration-Reg.,

Respected Ms. Sona. D. Solanki,

We are pleased to confirm that **Ramachandra College of Engineering (A), Eluru**, in collaboration with RSP Science Hub, will host a two-day International Conference titled **"International Conference on Research Communications in Engineering, Science, and Management (ICRCESM)-2025"** on **May 30–31, 2025**, conducted in a **hybrid mode**. The Departments of **Mechanical Engineering**, **Civil Engineering**, and **Electrical and Electronics Engineering** at Ramachandra College of Engineering are honored to partner with your esteemed organization for this important academic event.

This conference aims to provide a platform for global researchers, scholars, and industry experts to present their latest findings and innovations in engineering, science, and management. We are confident that our collaboration with RSP Science Hub will bring substantial value and enhance the quality and impact of ICRCESM-2025.

We look forward to a successful and productive partnership and appreciate the opportunity to work with your esteemed organization to make this conference a memorable and impactful experience for all participants.

Thank you once again for your proposal and collaboration.

Best regards,

Conference Convener

Dr. Raffi Mohammed 4/11/2024
Mechanical Engineering
Ramachandra College of Engineering
VATLURU (V), ELURU - 534 007
West Godavari Dist.

Principal

Dr. M. Muralidhara Rao

Principal
Ramachandra College of
Engineering, Vatluru (V), ELURU

DEPARTMENT OF MECHANICAL ENGINEERING

Date: 03/12/2024

Ref No.: RCE/MECH/ICRCESM-2025/COMM-01

This is to inform all faculty members that the First International Conference on Research Communications in Engineering, Science and Management (ICRCESM-2025) is confirmed to be conducted on 30th and 31st May 2025 in fully online (virtual) mode, in collaboration with RSP Research Hub, Coimbatore.

All faculty members of the Department of Mechanical Engineering are requested to extend their full support and actively participate in the smooth planning and successful execution of the event.

Key Roles and Responsibilities Include:

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Faculty members will be assigned specific duties by the Conference Conveners and Coordinators. All are requested to remain available on both days of the event and ensure their assigned tasks are completed diligently.

Your cooperation and commitment are vital for the academic quality and global outreach of this international virtual conference.

Convener:
Dr. Raffi Mohammed

HOD – Mechanical Engineering

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- Mr. S. Sunil Kumar, Assistant Professor-ME
- Mr. KPVSR Vinay Kumar, Assistant Professor-ME
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The Department of Electronics and Communication Engineering was established in 2008 with an initial intake of 60 students, later expanding to 180 by 2014. In 2012, the department introduced an M. Tech program in VLSI Design with 18 seats to cater to the growing demand for advanced education. Equipped with modern laboratories and a team of qualified faculty, the department focuses on delivering a strong foundation in electronics and communication engineering. It emphasizes a balance of theoretical knowledge and practical experience, preparing students for successful careers in the industry. Specialized training in software design and hardware-software integration further enhances students' skills, making them industry-ready.

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- Workshops & Tutorials-Hands-on sessions led by domain experts to provide practical insights into emerging technologies.
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Mr.	NAMBURI HARSHA	Department of Mechanical Engineering	S R K R Engineering College
Mr.	NMABURI HARSHA	Department of Mechanical Engineering	S.R.K.R. Engineering College (A)

Mr.	KARTHIKEYAN KMB	MECHANICAL	St. JOSEPH'S COLLEGE OF ENGINEERING, OMR, Chennai, Tamil Nadu
Mrs.	Shaamlie Devi T R	Civil Engineering	AMC Engineering College, Bannerghatta Road, Bengaluru, Karnataka
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Mr.	Aaryan	Department of Computer Science Engineering	Lingaya's Vidyapeeth
Dr.	SANDHYA TAMBEKAR WANJARI	Department of Microbiology	Dhote Bandhu Science College, Gondia, 441614, Maharashtra, India
Mr.	M. Madan Mohan	Department of Electrical and Electrinics Engineering	Jct college of engineering and technology, coimbatore, India
Mrs.	Tejaswini B N	Computer Science and Engineering	City Engineering College
Mr.	Manukonda Karthik,Chidi Sneha Latha	Department of Computer science and Busniess Systems	Mahatma Gandhi Institute of Technology
Ms.	DASARI SAIPRASANTHI	Electrical and Electronics Engineering	Ramachandra college of Engineering
Dr.	B.Harika	Department of computer science and engineering	Mahatma Gandhi Institute of Technology (MGIT),Kokapet, Gandipet, Hyderabad, Telangana , India
Mrs.	Laxmi M Chikkaraddi	Department of Computer Science and Engineering	Visvesvaraya Technological University, Karnataka,India
Mrs.	KOONA BHAVANI	Department of Mechanical Engineering	GITAM SCHOOL OF TECHNOLOGY, GITAM (DEEMED TO BE UNIVERSITY)

Dr.	Anil Kumar Dubey	Department of Electronics and Communication Engineering	Greater Noida Institute of Technology, Greater Noida, U.P., India
Mr.	Pradeep Kumar	Management Studies	Kumaun University Nainital
Dr.	Dr. Monika Dixit	Department of Electronics & Communication Engineering	Greater Noida Institute of Technology, Greater Noida (U.P., India)
Mrs.	Bhawna Sachdeva	Electronics and Communication Engineer	Greater Noida Institute of Engineering and Technology,Greater NOIDA,INDIA
Mr.	Mohammed Wajahat Hussain	Information Technology	Mahatma Gandhi Institute of Technology, Hyderabad, India
Ms.	Shaik Ayesha Begum	Department of Data Science and Artificial Intelligence	Parvathaneni Brahmayya Siddhartha College of Arts and Science
Dr.	Dr. Shiv Narain Gupta	Department of Electronics and Communication Engineering	Greater Noida Institute of Technology, Greater Noida, Uttar Pradesh, India
Mr.	Pendyala Mahesh Datta	Department of Computer Science & Business Systems	Mahatma Gandhi Institute of Technology
Mr.	Pratap kulkarni	Computer Science and design	Alvas institute of engineering and technology
Mr.	Komal Sai Charan Pasupuleti	Department of Information Technology	Mahatma Gandhi Institute of Technology, Hyderabad, India
Mrs.	V.Roopa	Department of cyber security	Mahendra Engineering College
Dr.	Chinju C J	Department of Business Studies	Adi Shankara Institute of Engineering and Technology, Kalady, Kerala
Mr.	Rahul Sharma	Department of Mechanical Engineering	Institute of Engineering & Technology, DAVV, Indore (M.P)
Mrs.	B Rajakumari	Computer science and engineering	Surya group of institutions, vikravanti Villupuram. Tamilnadu

Mr.	R SIVAGURU	CSE	KNOWLEDGE INSTITUTE OF TECHNOLOGY
Mrs.	G Maheshwari	Computer science engineering	Surya group of institutions at vikaravandi Villupuram tamilnadu
Dr.	P.R.Hemavathy	Electronics and Instrumentation	B S Abdur Rahman Crescent Institute of science and technology, Chennai, India
Ms.	Megha Desai	Department of Civil Engineering	Chandubhai S. Patel Institute of Technology, CHARUSAT
Ms.	Ms. PINAL PATEL	M. S. Patel Department of civil Engineering	Chandubhai S. Patel Institute of Technology, Faculty of Technology & Engineering, Charotar University of Science and Technology (CHARUSAT)
Mrs.	Swetha B	Department of Information Technology	Mahatma Gandhi Institute of Technology (A), Hyderabad, India
Mrs.	Y. Angeline Gnana Prakashi	Department of Information Technology	Meenakshi College Of Engineering
Mr.	Ch. Ajith Charan	Department of Computer Science and Business Systems	Mahatma Gandhi Institute of Technology, Gandipet, India
Mr.	Ch. Ajith Charan	Department of Computer Science and Business Systems	Mahatma Gandhi Institute of Technology, Gandipet, India
Ms.	Likhitha Thummaganti	Department of Information Technology	Mahatma Gandhi Institute of Technology
Dr.	Dr. Vanishri Arun	Department of Information Science and Engineering	JSS Science and Technology University
Mr.	Satish Sampatrao Patil	Marketing Management	Neville Wadia Institute of Management Studies and Research, Pune, India

Mr.	Kosana Suresh	ECE	Aditya University, SUrampalem
Dr.	Indu Bharti Jain	Department of Law	Maharishi Markansdeshwar (Deemed to be University), Mullana, Ambala
Mr.	E.sai kumar	Department of information technology	Mahatma Gandhi institute of technology,gandipet,hyderaba, india
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Mr.	KONDHALKAR GANESH EKNATH	DEPARTMENT OF MECHANICAL ENGINEERING	BIR TIKENDRAJIT UNIVERSITY MANIPUR
Dr.	KODURI SREELAKSHMI	Department of Electronics and Communication Engineering	Baba Institute of Technology and Sciences (A), Vishakhapatnam, India
Mr.	Vishwas Bharadwaj M	Computer Science and Engineering	Malnad College of Engineering (A), Hassan, Karnataka, India
Dr.	S.Jayalakshmi Priya	Department of Economics	Department of Economics Bangalore University Jnana Bharati Campus Bengaluru
Mr.	SIVABHARATHI S	Department of Computer Science Engineering	Erode Sengunthar Engineering College
Mr.	Birader Aditya Varma	Computer Science and Business system	Mathama gandhi Institute of techonology ,Gandipet, india
Mrs.	Sushmita Deb	Department of Electronics & Electronics Engineering	SJM Institute of Technology, Chitradurga, Karnataka, India
Mr.	Kiran K	Mechanical and Automobile Engineering Department	CHRIST University

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Mr.	RAYI SIVAGOPALARAO	Department of Mechanical Engineering	Ramachandra College of Engineering (A), Eluru, India
Mr.	NALLURI ANANTH KUMAR	Department of Mechanical Engineering	Ramachandra College of Engineering (A), Eluru, India
Ms.	S KEERTHI PRIYA	Computer Science	Karpagam Academy of Higher Education, Coimbatore, India
Mr.	Piyush Mishra	SBM (school of business management)	Chhatrapati Shahu Ji Maharaj University, Kanpur, Uttar Pradesh
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Dr.	Dr. D. Varalakshmi	Economics	Government Degree College for Women, A Karimnagar, Telangana, India
Ms.	A. Vignesh Chandra	Information Technology	Mahatma Gandhi Institute of Technology
Mrs.	Mrs. Shamama Kamal	Department of Computer Science and Engineering	Shri Ram Murti Smarak College of Engineering and Technology, Bareilly (U.P), India
Mr.	Tushar	Department Of Computer science	Amity University Lucknow campus
Dr.	THAVAMANI J	Mechanical Engineering	SRM Institute of Science and Technology, Kattankulathur-603203, Chengalpattu, India
Dr.	Thavamani J	Department of Mechanical Engineering	SRM Institute of Science and Technology, Kattankulathur-603203, Chengalpattu, India
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Mr.	Kamesh Tiwari	MBA	Kumaun University, Nainital
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Mr.	Rahul Sai Reddi	Department of Mechanical Engineering	R.V.R. & J. C. College of Engineering(A), Guntur, AP, India
Dr.	Chavali Phani Satwik Kumar	Mechanical Engineering	Mahatma Gandhi Institute of technology
Dr.	Sumangala N	Microbiology	BMS College for Women, Bengaluru, India
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Dr.	KUSUMA SUNDARA KUMAR	Civil Engineering	Ramachandra College of Engineering (A), Eluru, India
Dr.	M Radha Krishna	CSE AIML	Ramachandra College of Engineering (A), Eluru, India
Mr.	Balbhagvan Acharya	Management	Eklavya University, Damoh
Mrs.	M KAVITHA	DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING	LORDS INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mrs.	Pooja Rajesh Chavan	DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING	LORDS INSTITUTE OF ENGINEERING AND TECHNOLOGY
Dr.	Rosy S Fernandes	School of Liberal Studies	CMR University, Bangalore.

Mr.	Chougule S. D	Department of Design Engineering	RIT, Islampur
Dr.	Dr. Jay Bhavsar	Department of Civil Engineering	Charotar University of Science and Technology
Mr.	Addanki Venkateswara Rao	Department of Mechanical Engineering	R.V.R.&J.C. COLLEGE OF ENGINEERING (A++), CHANDRAMOULIPURAM, GUNTUR, ANDHRA PRADESH 522019
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Mrs.	Harividhya. S	Master Of Computer Applications	Er. Perumal Manimekalai College of Engineering, Koneripalli, Hosur
Mrs.	KEERTHANA S	DEPARTMENT OF EEE - POWER ELECTRONICS AND DRIVES	SRI VENKATESWARA COLLEGE OF ENGINEERING, SRIPERAMBUDUR, KANCHIPURAM (DT), TAMILNADU
Mr.	Rajani Venkata Krishna	EEE	LORDS INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mr.	Rajani Venkata Krishna	EEE	LORDS INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mr.	P SRINU VASARAO	Computer Science and ENgineering	Swarnandhra College of Engineering and Technology

Mr.	SATHEESH KUMAR G	Department of Computer Science and Engineering	CITY ENGINEERING COLLEGE, BANGALORE
Dr.	Sibghatullah Nasir	Department of Commerce	B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai, India
Mr.	JEEVAN K P	Department of Computer Science and Engg.	Visvesvaraya Technological University, Reginal Centre Mysuru Karnataka
Mr.	Tanish Virmani	Computer engineering	Vishwakarma Institute of technology
Mr.	Chakka Jyothi Akhil	Mechanical Engineering	R.V.R & J.C College of Engineering
Mr.	Poluru V N Sri Harsha Vardhana Koundinya	Mechanical Engineering	R.V.R &. J.C College of Engineering(A+), Guntur, Andhra Pradesh, India
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Mr.	RAMPRASATH S	Electrical and Electronics Engineering	Sri Krishna College of Technology, Coimbatore, Tamilnadu, India
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Mr.	Sanjay Pandurang Tajane	Department of Chemistry	Department of Chemistry, GITAM Deemed to be University, Vishakhapatnam-530045, (Andhra Pradesh) India,

Mr.	SRIKANTH V	B tech artificial intelligence and data science	SRI SHANMUGHA COLLEGE OF ENGINEERING AND TECHNOLOGY, PULLIPALAYAM, SALEM

First International Conference on Research Communications in Engineering, Science and Management (ICRCESM)- 2025

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Ramachandra College of Engineering (A), Eluru, Andhra Pradesh, India
Event Partner: RSP Research Hub, Coimbatore, Tamil Nadu, India
Conference Dates: 30/05/2025 & 31/05/2025

Program Schedule - Day 1 (30/05/2025)

Time (IST)	Program Description
09.00 am – 09.30 am	**Gmeet Link: meet.google.com/ygj-dqmy-ivw** **Inaugural and Keynote Session** • Welcome Slide (PPT) • Quotes • Prayer Song • Lighting of the Lamp • Welcome Speech • Inaugural Address • About Conference & Insights • Photo Session • Introduction of Keynote Speaker
09.31 am - 10.00 am	**Keynote Session** **Mr. Amit Ojha** Chief Technology Officer **Topic:** Adaptive Emotional AI Interfaces Hyper-Personalized Customer Engagement in Digital E-commerce
10.01 am - 01.30 pm	**Keynote Session & Presentations – Batch 1, 2, 3, 4 & 5** *(Join us for the keynote address, followed by research presentations from participants of Batches 1, 2, 3, 4 & 5)*
01.31 pm - 01.59 pm	**Lunch Break**
02.00 pm – 05.00 pm	**Keynote Session & Presentations – Batch 06 & 07** *(Join us for the keynote address, followed by research presentations from participants of Batches 06 & 07)*

Time (IST)	Program Description
05.00 pm – 01.59 am	**International Presentation - Batch 11** *(Join us for international research presentations by participants of Batch 11)* **Gmeet Link: meet.google.com/mrq-ryvs-ptb**
02.00 am	Day 01 Completed.

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Program Schedule - Day 2 (31/05/2025)

Time (IST)	Program Description
09.00 am – 09.30 am	**Gmeet Link: meet.google.com/iin-usny-jie** **Inaugural and Keynote Session** • Welcome Slide (PPT) • Quotes • Prayer Song • Lighting of the Lamp • Welcome Speech • About Conference & Insights • Photo Session • Introduction of Keynote Speaker
09.31 am - 10.00 am	**Keynote Session** **Mr. Prakash Subramani** SAP Architect **Topic:** AI-Driven Predictive Analytics and RPA Integration for End-to-End Billing Cycle Optimization
10.01 am - 01.30 pm	**Keynote Session & Presentations – Batch 9, 10 & 12** *(Join us for the keynote address, followed by research presentations from participants of Batches 9,10 & 12)*
01.31 pm - 01.59 pm	**Lunch Break**
02.30 pm - 02.59 pm	**Valedictory Session** **Gmeet Link: meet.google.com/pxc-oydn-rhp** • Valedictory Speech • Photo Session • Feedback from Participants • Announcement - Best Presentation (UG, PG, Research Scholar, Faculty & Industry) • Vote of Thanks • National Anthem
03.00 pm	Day 02 Completed & Conference End.

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Conference Dates: 30/05/2025 & 31/05/2025

Presentation Schedule - Day 1 (30/05/2025) FN

Gmeet Link: meet.google.com/uaz-xpzn-czr

Session Host: Ms. Sharmila V

Batch 01 - Keynote Session **Mr. Prince Kumar** *Principal Enterprise Architect* ***Topic:*** *Designing Autonomous Enterprise-Scale Deep Fake Detection Architectures: Securing Financial Ecosystems Against Emerging Digital Fraud Threats*	**Academic & Industry Conference Chair** ❖ **Ms. Laxmi Vanam** ❖ **Dr. Ashish Tiwari** ***Batch & Time (IST):*** ***01 & (10.00 am - 01.30 pm)***

S. No	ICRCESM 2025	Author Name	Paper Title
1	2505640	Dr. Monika Dixit	Binary Arithmatic Calculator: A 4 Bit Signed Design Using Using Schematic And Verilog
2	2505553	Mr. Tejesh Raju Peruri	Cryptographic Algorithms and Protocols: Evolution and Future Trend
3	2505564	Ms. Shaik Azeeza Farhana	Cyber security in the FinTech Sector: Securing Digital Transactions
4	2505572	Mrs. Sridevi J	A Comparative Analysis Of Svm, Cnn And Lstm Models For Speech Emotion Recognition
5	2505574	Mrs. Kulsoom Fathima	Enhanced Epileptic Seizure Detection from EEG Signals Using Optimized CNN Models with Preprocessing and Denoising Techniques.
6	2505578	Dr. Udayasri Kompalli	Enhancing Attendance Management with CNN-Based Face Recognition- A Secure and Efficient Approach
7	2505579	Mr. Shaik Obaid	Real-Time Vehicle Detection And Classification In Traffic Videos Using Yolov8
8	2505583	Mr. Darshan S P	Advanced Design and Implementation of a CanSat for Environmental Monitoring and Data Transmission
9	2505595	Mr. Koushik R	A Review of Different Blockchain-Based Mechanisms Incorporated for Enhancing Data Security in Digital Forensic Images
10	2505596	Mr. P V Kishore Kumar	Smart Surveliance System for Farming Places
11	2505683	Ms. S Keerthi Priya	Federated Learning-Driven Machine Learning Approaches For Autism Spectrum Disorder Detection Across Age Groups

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Conference Dates: 30/05/2025 & 31/05/2025

Presentation Schedule - Day 1 (30/05/2025) FN

Gmeet Link: meet.google.com/nat-aoeg-btt

Session Host: Ms. Sindhuja D

Batch 02 - Keynote Session **Mr. Anish Kumar Jain** *Director, Software Engineering at Capital One* ***Topic:*** *Integration of Explainable AI (XAI) in Credit Card Fraud Detection Systems: Enhancing Transparency in Software Engineering Solutions*	**Academic & Industry Conference Chair** ❖ **Ms. Swapnil Ghate** ❖ **Dr. Sarika Ghanshyam Jadhav** ***Batch & Time (IST):*** ***02 & (10.00 am - 01.30 pm)***

S. No	ICRCESM 2025	Author Name	Paper Title
1	2505641	Mrs. Bhawna Sachdeva	Enhancing Accessibility In Health Care : Voice & Data Controlled Medical Assistant Specially Abled Persons
2	2505644	Dr. Shiv Narain Gupta	Iot-Driven Intelligent Automation For Energy Conservation In Lecture Halls
3	2505647	Mr. Komal Sai Charan Pasupuleti	Development of a Versatile and Fast Algorithm for Optimal Ship Routing in the Indian Ocean
4	2505651	Mrs. B. Rajakumari	Faster R-CNN using MRI: cerebrovascular diseases
5	2505652	Mr. R Sivaguru	AI-Driven Pest And Disease Detection In Smart Farming Systems
6	2505653	Mrs. G Maheshwari	Efficient detection of diabetic retinopathy using DiaNet
7	2505657	Mrs. Swetha B	A Smart Flood-Responsive Bridge with Automated Elevation and Alert System
8	2505664	Mr. E. Sai kumar	IoT-Enabled Child Safety Mechanism for Preventing Deaths in Vehicles
9	2505665	Mr. Sivaguru R	Predictive Modeling for Early Disease Diagnosis Using Machine Learning: A Healthcare Data-Driven Approach
10	2505670	Mr. Sivabharathi S	FuelEye An Intelligent IoT Framework for Smart Fuel Management and Distance Prediction in Sustainable Transportation
11	2505686	Mr. U Ashrith Raj	A Review On Women Safety Analytics – Protecting Women From Safety Threats

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Gmeet Link: meet.google.com/jrv-gaxh-zts

Session Host: Ms. Vanisree M

Batch 03 - Keynote Session	**Academic & Industry Conference Chair**
Ms. Priti Nathani *Senior Physical therapist* ***Topic:*** *Technological Integration for Coordinated Multidisciplinary Care in Home-Based Physical Therapy: Barriers, Enablers, and Patient-Centered Outcomes*	❖ **Mr. Saravanan Thirumazhisai Prabhagaran** ❖ **Dr. G. Vanitha** ***Batch & Time (IST):*** ***03 & (10.00 am - 01.30 pm)***

S. No	ICRCESM 2025	Author Name	Paper Title
1	2505648	Mrs. V.Roopa	Digital locker using blockchain
2	2505622	Mr. R. Bhagya Sri	Physico-Chemical Properties for Soils Type Classification of OAK using different Machine Learning Techniques
3	2505597	Ms. Amrutha Peketi	Food Management System
4	2505599	Ms. M Rajpriya	Integrating Symmetric Ciphers and Hashing for Resilient Cloud Data Protection
5	2505602	Ms. Swarangi Hule	Talk It Out: Women Oriented Online Blogging Website with Offensive Language Detection System
6	2505608	Ms. Prekki Venkata Sriramya	Modelling Facial Tissue Layers for Precision Skull Overlay and Reconstruction
7	2505609	Ms. Shaik Nazrin Tarannum	A Comprehensive Risk Assessment of Genetical Disorders in Children
8	2505610	Mrs. Ganipineni Charita	Detection of Autism Detection Syndrome
9	2505612	Mrs. Renuga Devi B	Enhancing The Effectiveness And Accuracy Of Generalized Instances Over Imbalanced Problem Using Ml
10	2505614	Ms. Ardha Srija Reddy	Cross age face recognition
11	2505696	Mr. Shathya Pranav S R K	AI in Drug and Vaccine Engineering: Progresses and Challenges

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Conference Dates: 30/05/2025 & 31/05/2025

Presentation Schedule - Day 1 (30/05/2025) FN

Gmeet Link: meet.google.com/dxr-sthy-igs

Session Host: Ms. Sasiprabha J

Batch 04 - Keynote Session **Mr. Karan Alang** *Principal Software Engineer* ***Topic:*** *Meta-Learned Data Pipeline Adaptation for Continual Learning in Non-Stationary Data Streams*	**Academic & Industry Conference Chair** ❖ **Mr. Dipesh J Kashiv** ❖ **Prof. (Dr.) Sailesh Suryanarayan Iyer** ***Batch & Time (IST):*** ***04 & (10.00 am - 01.30 pm)***

S. No	ICRCESM 2025	Author Name	Paper Title
1	2505691	Mr. Tushar	Safeguarding the Cloud Frontier
2	2505618	Mr. M. Radha Krishna	A Deep Cnn Model for Cyberbullying Detection In Online Social Media
3	2505624	Mr. G. Dharaneeshwar Reddy	Park Ease: Streamlined Parking Reservation and Management System
4	2505632	Mrs. Tejaswini B N	Indian Sign Language to Multilingual Text Using Deep Learning
5	2505633	Mr. Manukonda Karthik	Drug Inventory and Supply Chain Tracking
6	2505636	Mrs. Laxmi M Chikkaraddi	AI-Powered Multilingual Assistant
7	2505642	Mr. Mohammed Wajahat Hussain	Real-Time Multilingual Speech Translation for Peer Communication
8	2505643	Ms. Shaik Ayesha Begum	Fruit Quality Evaluation Using Machine Learning: A Review to Fruit Quality Evaluation Using Deep Learning
9	2505645	Mr. Pendyala Mahesh Datta	Two-Wheeler Traffic Violations Detection & Automated Penalty Issuance System
10	2505646	Mr. Pratap kulkarni	5G Networks
11	2505698	Ms. Jeevadharsini G K	AgriDropIQ: A Digital Innovation for Crop-wise Water Footprint Intelligence & Sustainable Farming

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Presentation Schedule - Day 1 (30/05/2025) FN

Gmeet Link: meet.google.com/cvv-poeb-nmd

Session Host: Mrs. Kanimozhi S

Batch 05 - Keynote Session **Mr. Gaurav Dixit** *Vice President* ***Topic:*** *AI-Driven Sustainable Omni-Channel Product Management in Retail: Real-Time Demand Sensing for Personalized, Eco-Friendly Assortments*			**Academic & Industry Conference Chair** ❖ **Mr. Jayanth Kolli** ❖ **Dr. Kamaljyoti Talukdar** ***Batch & Time (IST):*** ***05 & (10.00 am - 01.30 pm)***
S. No	**ICRCESM 2025**	**Author Name**	**Paper Title**
1	2505673	Mr. Kiran K	Hydrogen-Enriched Biofuels: A Hybrid Approach for Cleaner Combustion in CI Engines
2	2505676	Dr. Ravikumar R	Hydrogen Production and Storage Technologies: Advances and Challenges for Future Mobility
3	2505562	Mr. Dhanush Beemaraju	Fabrication and Mechanical Characterization of Epoxy-Based S-Glass/Kevlar Fiber Reinforced Hybrid Composites Filled with Graphite Powder
4	2505584	Mr. Tratia Darshan Kamleshbhai	Revolutionizing Press Manufacturing with Industry 5.0
5	2505586	Sailaja C	Predictive Modeling of Carbon Footprint in Hybrid Structural Components Using AI and Mathematical Algorithms
6	2505592	Mr. Manoj Prakash Bauskar	Enhancing Polymer Formability and Surface Finish through Optimized Spindle Speeds and FEM A Review
7	2505593	Dr. Santhi Sree Nerella	Analyasis of Closed Loop Pulsating heat pipe using Python Programming
8	2505594	Mr. Jignesh Balkrishnabhai Pathak	Numerical Investigation Of 1-Dof Vortex-Induced Vibration For Single Tube Subjected To Cross Flow
9	2505621	Dr. Shivaprasad D	Influence of Mechanical Properties on Al5083 Metal Matrix Composites
10	2505625	Mr. Namburi Harsha	Effect of Heat Treatment on Microstructure, hardness and wear Resistance of AZ31 Magnesium Alloy Processed by Friction Stir Processing
11	2505693	Dr. Thavamani J	Study of thermal and mechanical properties in Al-Mg alloys for lightweight thermal applications
12	2505695	Mr. Viral Panara	Investigation on metal foam made via powder metallurgy method using carbamide as a space holder

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Presentation Schedule - Day 1 (30/05/2025) AN

Gmeet Link: meet.google.com/upt-tzzf-ncf

Session Host: Ms. Mullai N

Batch 06 - Keynote Session	**Academic & Industry Conference Chair**
Mr. Nikhil Kassetty *Software Engineer* ***Topic:*** *Leveraging Serverless Multi-Cloud Architectures for AI-Driven Real-Time Fraud Detection in FinTech*	❖ **Dr. Mrs. Arpita Hajra** ❖ **Dr. M. Sudha** ***Batch & Time (IST):*** ***06 & (02.00 pm - 05.00 pm)***

S. No	ICRCESM 2025	Author Name	Paper Title
1	2505650	Mr.Rahul Sharma	Performance Analysis of Two-Phase Constant Pressure Ejector Used in Ejector Expansion Refrigeration System (EERS)
2	2505662	Mr.Satish Sampatrao Patil	A Study of E-Commerce Corporate Websites and their Online Portals on the Communication of Sustainability for a Better Future
3	2505626	Mr.Karthikeyan Kmb	Optimization of Laser Transformation Hardening of EN24 Alloy Steel Using RSM Coupled with Evolutionary Algorithms
4	2505637	Mrs.Koona Bhavani	Hardness And Wear Behaviour Of Aa6061-T651 Friction Stir Welded Joints With The Addition Of Ysz Powder
5	2505666	Mr.Kondhalkar Ganesh Eknath	Fault diagnosis and health management of bearings in rotating equipment based on vibration analysis
6	2505674	Mr.Sakthi. M	Enhancing UV-A Radiation Shielding in Automotive Windshields Using Nanostructured Cerium Oxide Coatings
7	2505675	Mr.Satayu Travadi	Pyrolysis of Plastic Waste as an alternative of Fuel: A Review
8	2505680	Mr.Nitta Rushi Kumar	Development And Performance Analysis Of A Bio-Inspired Octopod Robot Using Jansen Linkage Mechanism
9	2505681	Mr.Rayi Sivagopalarao	Experimental And Testing Mechanical Properties Of Al 7075–Zrb–Sic–Gr Composites Using For Advanced Heat Sink Applications
10	2505692	Dr.Thavamani J	Improving the Productivity of a Double Slope Solar Still by Integrating a PMMA Fresnel Lens: Experimental Approach
11	2505699	Mr.Rahul Sai Reddi	A Comparative Study on The Optimization of Milling Parameters for Jute/Epoxy & Glass/Epoxy Composites Using the Taguchi Method & Response Surface Methodology
12	2505703	Mr.Harmish bhatt	Quality improvement in composite grating industry by application of Statistical Quality Control tools
13	2505713	Mr. Addanki Venkateswara Rao	Machine Learning Techniques For Predicting Material Wear Rate And Frictional Force Using Lm26 And Garnet Composite
14	2505715	Mr.M.K.N.Sateesh	Experimental and Testing Of Kevlar Carbon And E Glass With 5grams Graphite Using Handlay Up Technique

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Session Host: Ms. Sindhuja D

Batch 07 - Keynote Session **Mr. Dipesh J Kashiv** *Group Product Manager, Cisco* ***Topic:*** *Self-Evolving AI-Driven Networks: Designing Adaptive Communication Architectures through Continual Learning Models*			**Conference Chair** ❖ **Dr. A. M. Arun Mohan** ***Batch & Time (IST):*** ***07 & (02.00 pm - 05.00 pm)***
S. No	**ICRCESM 2025**	**Author Name**	**Paper Title**
1	2505638	Dr.Anil Kumar Dubey	Real Time Hand Gesture Based Robot
2	2505552	Mr.Shailesh Murugaa B	Precision Agriculture through Smart Irrigation using IoT and Hybrid Machine Learning
3	2505554	Mr.Golla Kiran kumar	Hybridization Of Photovoltaic Arrays-Modeling, Simulation, And Performance Analysis In Matlab
4	2505598	Mr.Kiran Surya S U	Inclusive Text Intercom With Vibration Alerts
5	2505600	Ms.M.Vedha priyadharshini	Dig saftey
6	2505615	Mr.Bujjibabu Penumutchi	Multi-Dimensional Parametric Analysis Of Multiplier For Signal Processing Applications
7	2505619	Ms.R.Keerthana	Adaptive Filter-Based Grey Wolf Optimization Algorithm For Enhanced Medical Diagnosis
8	2505623	Mrs.Tankala Sireesha	Enhancing Chili Farming Efficiency with IoT and Deep Learning: A Low-Cost Solution for Farmers
9	2505654	Dr.P.R.Hemavathy	Development of an Automated Commercial Batter Grinder with Integrated Payment System
10	2505663	Mr.Kosana Suresh	Parametric Evaluation Of Multiplier Architectures For Digital Iir Filter Applications
11	2505667	Dr.Koduri Sreelakshmi	Adaptive Beamforming in mm Wave Integrated Sensing and Communication
12	2505714	Mr. D Jagadesh	CFD Analysis to Enhance Heat Transfer Using CuO-Water Nanofluids in a Spiral Baffle Shell-and-Tube Heat Exchanger
13	2505708	Mrs. M Kavitha	The Evolution Of Natural Language Processing: Current State And Future Directions

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Session Host: Ms. Sindhuja D

Conference Chair

❖ **Dr. S. Kaliappan**

Batch & Time (IST):
08 & (02.00 pm - 05.00 pm)

S. No	ICRCESM 2025	Author Name	Paper Title
1	2505655	Ms. Megha Desai	Recycled Plastics In Construction: A Pathway To Sustainable Infrastructure
2	2505656	Ms. Pinal Patel	Ultra-High-Performance Fiber-Reinforced Concrete: A Comprehensive Review
3	2505668	Mr. Vishwas Bharadwaj M	Review of Sentiment Analysis in Cryptocurrency Trading
4	2505585	Mrs. Maithili K.L.	Behavioural Analysis Of Hdpe-Infused Bubble Beams With Ceramic And Industrial Waste-Based Concrete
5	2505604	Dr. S.B ala Padmaja	Comparitive Study Of Shear Strength Of Black Cotton Soil Using Robo-Sand And Silica Fume
6	2505606	Mr. Prafull Kothari	Optimizing Droplet Condensation for Eco-Friendly Cooling: Experimental and CFD Validation
7	2505627	Mrs. Shaamlie Devi T R	Assessment Of Climate Changes Using Qgis Software In Karnataka
8	2505628	Mrs. Nischitha S Y	Performance Analysis Of Paver Blocks Made With Recycled Plastic And Fine Aggregates
9	2505685	Mr. Chebrolu Rajesh	Optimization of Mix Design for Self Compacting Concrete Using Artificial Neural Networks
10	2505711	Mr. Chougule S D	Design improvement and structural analysis of centrifugal pump baseplate using finite element analysis
11	2505712	Dr. Jay Bhavsar	Self-Compacting Concrete Using Alccofine 1203 And Brass Coated Micro Steel Fiber
12	2505744	Mrs Harividhya.S	Powered Recommendation System for Personalized Course and Mentor Selection
13	2505707	Mr.Balbhagvan Acharya	A Study on the Impact of Human Resource Accounting and Talent Management in Private Higher Educational Institution-with Special Reference, Patna, Bihar

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Session Host: Ms. Sharmila V

Conference Chair ❖ ***Dr. Renuka Sagar*** ❖ ***Dr. Sudharson D*** ***Batch & Time (IST):*** ***11 & (05.00 pm - 02.00 am)***			**Conference Chair** ❖ ***Dr. Ashish Tiwari*** ❖ ***Dr. K. K. Baseer*** ***Batch & Time (IST):*** ***11 & (05.00 pm - 02.00 am)***
S. No	**ICRCESM 2025**	**Author Name**	**Paper Title**
1.	2505716	Harish Reddy Bonikela	A Decade of Progress in Front-End Engineering: A Review of Trends, Technologies, and Challenges in Modern Software Development
2.	2505717	Saurabh Mittal	Accelerating E-Commerce Growth through Digital Transformation: Strategies, Technologies, and Customer-Centric Innovations in the Post-Pandemic Era
3.	2505718	Ullas Das	AI methods used in solar energy optimization over the last decade
4.	2505719	Laxmi Vanam	Navigating the Nexus of Digital Transformation and Business Intelligence: Impact and Innovations in Finance and Retail Sectors
5.	2505720	Shruti Khandelwal	Optimizing Authorization and Financial Services Innovation: Strategic Approaches for Senior Product Managers in Payments, SME Lending, and Supply Chain Financing
6.	2505721	Prakash Subramani	Optimizing Order Management and Billing rocesses Through SAP-Driven ERP Systems: A Technology-Oriented Approach
7.	2505722	Kartheek Dokka	Artificial Intelligence in the Fight Against Cyber Fraud: Challenges, Advances, and Future Directions
8.	2505723	Ilakiya Ulaganathan	Ethical and Security Risks of Autonomous AI Systems
9.	2505724	Dilip Prakash Valanarasu	Enhancing E-Commerce Fraud Detection Using AI-Driven Cybersecurity Systems
10.	2505725	Saurabh Mittal	The Role of Artificial Intelligence in the Digital Transformation of E-Commerce: Opportunities and Challenges
11.	2505726	Jay Shah	Responsible AI: Techniques for Bias Mitigation and Explainability in Machine Learning Models
12.	2505727	Kunal Parekh	Next-Gen Quality Assurance: Leveraging AI, Automation, and DevOps for Scalable Software Excellence

13.	2505728	Deepaben jayeshkumar Bhavsar	Project Management in Regulatory Affairs: Leveraging AI, eCTD, and Strategic Labeling
14.	2505729	Sanghamithra Duggirala	Microservice Architecture-platform independent Middleware integration
15.	2505730	Sunil Sudhakaran	Enabling Rapid Application Development through Reusable Cloud Process Orchestration and Workflow Automation Frameworks
16.	2505731	Hari Krishn Gupta	Quantum Machine Learning Approaches for Real-Time Market Pattern Recognition in High-Frequency Trading: A Banking Sector Application
17.	2505732	Parshv Praful Gala	Intelligent Real-Time Object Detection and Motion Tracking in Ultra-High-Resolution Aerial Surveillance Using Deep Learning
18.	2505733	Bhanuvardhan Nune	Deep Learning-Driven Multimodal Image Registration for Enhanced Diagnostic Precision in Biomedical Imaging
19.	2505734	Ravi Kiran Pagidi	Validation-First Architectures: Ensuring Data Quality in Scalable Lakehouse Environments
20.	2505735	Jagadeesh Thiruveedula	Enhancing Real-Time Data Warehousing Through Intelligent ETL Pipeline Orchestration: A Comparative Study of Talend and IBM DataStage
21.	2505736	Srinath Muralinathan	Optimizing Data Migration Efficiency through Intelligent ETL Automation: Leveraging Artificial Intelligence and Machine Learning for Latency Reduction
22.	2505737	Aneesh Kumar	AI-Driven Data Quality Assurance in Multi-Cloud Data Warehousing Environments
23.	2505738	Joshna Konudula	Leveraging Artificial Intelligence and Machine Learning to Develop Industry-Tailored Salesforce CRM Solutions: A Sector-Specific Innovation Framework
24.	2505739	Devanand Ramachandran	Optimizing Enterprise Scalability and Innovation through the Salesforce Lightning Platform: A Strategic Framework for Next-Generation Cloud-Based Application Development
25.	2505740	Jayavelan Jayabalan	Optimizing Enterprise Intelligence: A Strategic Framework for Integrating Salesforce with Modern Cloud-Based Data Warehouses for Real-Time Unified Analytics
26.	2505741	Venkata Vijay Krishna Paruchuru	Enhancing the Scalability and Efficiency of Distributed Machine Learning Frameworks in Heterogeneous Cloud Environments
27.	2505742	Prem Nishanth Kothandarama	Designing Developer Platforms for Cross-Cloud Portability and Scale
28.	2505743	Sudha Rani Pujari	AI-Powered Cybersecurity: A Unified Approach to Protecting Enterprise, Cloud, and SaaS Applications

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Session Host: Ms. Sindhuja D

Batch 09 - Keynote Session **Ms. Deepaben Bhavsar** *Regulatory Affairs Manager* ***Topic:*** *Ethical and Legal Implications of Using Artificial Intelligence in Regulatory Submissions and Review Processes*			**Conference Chair** ❖ **Dr. I. Mohana Krishna** ***Batch & Time (IST):*** ***09 & (10.00 am - 01.30 pm)***
S. No	**ICRCESM 2025**	**Author Name**	**Paper Title**
1	2505672	Mrs. Sushmita Deb	IOT – Enabled Smart Bridge Control With Node MCU ESP8266
2	2505581	Dr. Indu Bharti Jain	Impact of Artificial intelligence on journalism
3	2505639	Mr.Pradeep Kumar	Evolution of Visual Storytelling in Social Media Ads for Non-durables
4	2505649	Dr.Chinju C J	Enhancing Employee Performance: The Role of HR Practices in Private Banking Sector
5	2505669	Dr.S.Jayalakshmi Priya	Women workers in Bangalore's gig economy
6	2505684	Mr.Piyush Mishra	Green Marketing: Adoption Challenges and Global Perspective
7	2505688	Dr.D.Varalakshmi	Harnessing Technology for Sustainable Waste Management:A Circular Economy Approach
8	2505694	Mr.Kamesh Tiwari	Retail Investors and IPO Subscription in the Indian Capital Market
9	2505710	Dr.Rosy S Fernandes	Integrating AI Tools In Science Education To Enhance Communication And Conceptual Understanding
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Gmeet Link: meet.google.com/pgn-widh-ccg

Session Host: Ms. Sindhuja D

Batch 10 - Keynote Session **Mr. Naveen Kunchakuri** *Senior Machine Learning Engineer* ***Topic:*** *Secure AI Integration with MLOps*			**Conference Chair** ❖ **Dr. P. Saravanan** ***Batch & Time (IST):*** ***10 & (10.00 am - 01.30 pm)***
S. No	**ICRCESM 2025**	**Author Name**	**Paper Title**
1	2505575	Ms. Manju P	Targeting PI3K/AKT/mTOR Pathway: Cytotoxicity, Flow Cytometry, and Molecular Docking in AGS Cells by Sesamin
2	2505576	Ms. Heera.M.J	Evaluating the Anti-Proliferative and Apoptotic Effects of Sesamin on SKOV3 Ovarian Cancer Cells: An Integrated In Vitro and In Silico Approach
3	2505617	Mr. Prasanna Kumar Sistla	A Study on Disinfection Performance of Mobile Airborne Disinfection System with Hydrogen Peroxide in Complex Areas
4	2505563	Mr. Pankaj Sandhu (P.S.)	Safeguarding Privacy In The Age Of Artificial Intelligence: Legal Implications And Challenges
5	2505577	Ms .Z. Yasin Begam	Eco-Friendly Synthesis of Selenium Nanoparticles Using Camptotheca acuminata: Characterization and Biomedical Applications
6	2505588	Ms. Subhalaxmi Dey	Impact of thermal radiation on the electro-magneto-hydrodynamic flow of tri-hybrid nanofluid over an expanding surface
7	2505630	Dr. Sandhya Tambekar Wanjari	Antibacterial Properties of Freshly Prepared Rose Petal Extracts against Escherichia: A Bacterium Responsible for Urinary Tract Infections
8	2505701	Dr. Sumangala N	Human Gut Microbiome
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Gmeet Link: meet.google.com/cvv-poeb-nmd

Session Host: Mrs. Kanimozhi S

Batch 12 - Keynote Session **Mr. Sathish Rao** *Senior Engineering Consultant* ***Topic:*** *Transportation Systems Management and Operations*			**Conference Chair** ❖ Will be Updated soon ***Batch & Time (IST):*** ***12 & (10.00 am - 01.30 pm)***
S. No	**ICRCESM 2025**	**Author Name**	**Paper Title**
1	2505706	Dr.M Radha Krishna	A Deep Neural Network Method for Heart Rate Variability-Based Multiclass Stress Detection
2	2505749	Dr.Sibghatullah Nasir	Green FinTech and Digital Sustainability
3	2505753	Mr.Poluru V N Sri Harsha Vardhana Koundinya	Performance Evaluation of Claude cycle in Cryogenic Applications
4	2505750	Mr.Jeevan K P	A Comprehensive Review of the Cognitive and Therapeutic Effects of Mantras
5	2505704	Dr. Kusuma Sundara Kumar	CNN-RNN-Bayesian Hybrid Method for Predicting Neonatal ICU Cardiac Arrests
6	2505745	Mrs. Keerthana S	Design and Simulation of a Portable Bidirectional Dual Active Bridge EV Charger
7	2505746	Mr. Rajani Venkata Krishna	Solid-State Electrolytes: A Path to Safe and High-Capacity Lithium-Based Batteries
8	2505709	Mrs.Pooja Rajesh Chavan	An Advanced Image Processing System for Counterfeit Currency Detection: Architecture, Methodology, And Feature Analysis
9	2505705	Dr. Kusuma Sundara Kumar	Deep Learning and Quick Text Embeddings for Deep fake Detection
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RSP Research Hub Team Members

S. No	Name	Organization	Role
1.	Dr. C. Somu	RSP Research Hub (ECLeanrix EdTech Pvt Ltd)	Chairman & Managing Director (CMD)
2.	Dr. T. Pravin		Executive Director (ED)
3.	Er. M. Saravana Kumar		Director of Operations (DO)
4.	Mrs. Deepa G		Manager - Consultancy
5.	Mrs. Siva Ranjani		Manager - IT Development & Finance
6.	Ms. Sona D Solanki		Head & Liaison Officer
7.	Er. Prakash K		Assistant Engineer - R&D
8.	Ms. Sridhanusha S K		Assistant Manager - Publication
9.	Mrs. KaniMozhi S		Office Administrator
10.	Ms. Vanithamani R		Assistant Manager – Process Management
11.	Ms. Sasiprabha J		Coordinator-Publication
12.	Ms. Sindhuja D		Assistant Manager - Marketing & Design
13.	Ms. Mullai N		Senior Process Executive
14.	Ms. Sharmila V		HR Executive & MOC
15.	Ms. Vanisree M		UX/UI Design Lead
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17.	Ms. Priyadharshini S M		Project Management - Intern
18.	Ms. Sneha Muruganandan		Marketing & Operations - Intern

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Conference Chairs

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2.	Mr. Swapnil Ghate	Principal Product Manager
3.	Mr. Saravanan Thirumazhisai Prabhagaran	Principal Architect
4.	Mr. Dipesh J Kashiv	Group Product Manager, Cisco
5.	Mr. Jayanth Kolli	Cell Test Engineer
6.	Mrs. Arpita Hajra	Senior Manager, Deloitte Consulting LLP, USA
7.	Dr. Ashish Tiwari	Assistant Professor, Department of Computer Science and Engineering, Amity university Lucknow Campus, Uttar Pradesh
8.	Dr. Sarika Ghanshyam Jadhav	Assistant Professor, School of Computer Science, Engineering, and Applications, D Y Patil International University, Pune, Maharashtra, India.
9.	Dr. G. Vanitha	Associate Professor, Department of Computer Science Engineering, Chaitanya Bharathi Institute of Technology (A), Gandipet, Hyderabad, Telangana, India.
10.	Prof. (Dr.) Sailesh Suryanarayan Iyer	Professor and Dean, Rai School of Engineering, Rai University, Saroda, Dholka, Ahmedabad, India.
11.	Dr. Kamaljyoti Talukdar	Associate Professor, Department of Mechanical Engineering, Dhemaji Engineering College, Assam, India.
12.	Dr. M. Sudha	Associate Professor, Department of ECE, SNS College of Engineering, Tamil Nadu, India.
13.	Dr. A. M. Arun Mohan	Associate Professor, Department of Civil Engineering Sethu institute of Technology, Virudhunagar, Tamil Nadu, Tamil Nadu, India.
14.	Dr. S. Kaliappan	Professor, Department of Mechanical Engineering, KCG College of Technology, Karapakkam, Chennai, Tamil Nadu, India
15.	Dr. I. Mohana Krishna	Assistant Professor, K L Business School, K L University, Vaddeswaram, Guntur, Andhra Pradesh, India.
16.	Dr. P. Saravanan	Associate Professor, Department of Chemistry, St. Joseph's College of Engineering, OMR, Chennai, Tamil Nadu, India.
17.	Dr. Renuka Sagar	Professor, Department of Artificial Intelligence and Machine Learning, Ballari Institute of Technology and Management, Ballari, Karnataka, India.
18.	Dr. Sudharson D	Associate Professor, Department of AI & DS, Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India.
19.	Dr. K. K. Baseer	Associate Professor, Department of Computer Science and Engineering, GITAM School of Technology, GITAM, Bengaluru, Karnataka, India.

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Rubric Sheet for Evaluation of Best Presentation

(Check Rubric Sheet PDF)

Maximum Mark -20

Presentation should be completed within 10 minutes, and Participants are required to keep their Face Camera On during the presentation. It will be evaluated by the Conference Team Members and the Conference Chair

Link for **Day 01, Day 02, Inaugural Keynote Speech** and **Valedictory** for

"First International Conference on Research Communications in Engineering, Science and Management (ICRCESM)- 2025"

Day 1 – 30/05/2025 G-meet Links

Session	Time	Google Meet Link
Inaugural & Keynote 1	**Forenoon (10:00 AM – 01:30 PM)**	meet.google.com/ygj-dqmy-ivw
Keynote 2 & Batch 1		meet.google.com/uaz-xpzn-czr
Keynote 3 & Batch 2		meet.google.com/nat-aoeg-btt
Keynote 4 & Batch 3		meet.google.com/jrv-gaxh-zts
Keynote 5 & Batch 4		meet.google.com/dxr-sthy-igs
Keynote 6 & Batch 5		meet.google.com/cvv-poeb-nmd
Keynote 7 & Batch 6	**Afternoon (02:00 PM – 05:00 PM)**	meet.google.com/upt-tzzf-ncf

Keynote 8 & Batch 7		meet.google.com/vac-ihuq-gqx
Keynote 9 & Batch 8		meet.google.com/aej-ruxz-bbq
Batch 11 (Evening Session)	**Evening (05:00 PM – 2:00 AM)**	meet.google.com/mrq-ryvs-ptb

Day 2 – 31/05/2025 G-meet Links

Session	Time	Google Meet Link
Inaugural & Keynote 12	**Forenoon (10:00 AM – 01:30 PM)**	meet.google.com/iin-usny-jie
Keynote 10 & Batch 9		meet.google.com/qgy-xryv-uka
Keynote 11 & Batch 10		meet.google.com/pgn-widh-ccg
Valedictory Session	**Afternoon (02:30 PM – 03:00 PM)**	meet.google.com/pxc-oydn-rhp

First International Conference on Research Communications in Engineering, Science and Management (ICRCESM)- 2025

Jointly Organized by: M2E2C2 (Mechanical, Management, Electrical, Electronics, Civil and Computer Science Engineering Departments), Ramachandra College of Engineering (A), Eluru, Andhra Pradesh, India & RSP Research Hub, Coimbatore, Tamil Nadu, India.

Rubric for Best Presentation (UG, PG, Research Scholar & Faculty)

Presenter Name_____ Paper id_____ Total Score_____/20*

CATEGORY	4	3	2	1	Comments
Content and Comprehension	Shows a full understanding of the topic and can consistently answer questions posed by listeners about the topic	Shows a good understanding of the topic and can answer most questions posed by listeners about the topic	Shows a good understanding of parts of the topic and can answer a few questions posed by listeners about the topic	Does not seem to understand the topic very well and is unable to accurately answer questions posed by listeners about the topic	_____/4
Timing	Speaker's Consistent with timing and able to complete within stipulated time and able to answer all questions.	Speaker's Consistent with timing and able to complete within stipulated time.	Speaker cannot able to complete the presentation on time	Speaker cannot able to complete due to technical interpretations	_____/4
Professional Language	Consistently speaks using professional language	Mostly speaks using professional language	Sometimes speaks using professional language	Rarely speaks using professional language	_____/4
Volume and Diction	Volume and diction are consistently clear enough to be heard by audience	Volume and diction are mostly clear enough to be heard by audience	Volume and diction are sometimes clear enough to be heard by audience	Volume and diction are rarely clear enough to be heard by audience	_____/4
Physicality	Consistently looks relaxed and confident, stands up straight, establishes eye contact with audience during presentation	Mostly looks relaxed and confident, stands up straight, establishes eye contact with audience during presentation	Sometimes looks relaxed and confident, stands up straight, establishes eye contact with audience during presentation	Rarely looks relaxed and confident, stands up straight, establishes eye contact with audience during presentation	_____/4

Note: Presentation should complete within 10 minutes & should open face camera during your presentation

***Evaluated by Conference Chairs & ICRCESM – 2025 Team**

Department of Mechanical Engineering

Conference Report

First International Conference on Research Communications in Engineering, Science and Management (ICRCESM-2025)
Held on 30th – 31st May 2025

1. Introduction

The First International Conference on Research Communications in Engineering, Science and Management (ICRCESM-2025), organized jointly by the M2E2C2 Departments (Mechanical, Management, Electrical, Electronics, Civil and Computer Science Engineering) of Ramachandra College of Engineering (Autonomous), Eluru, Andhra Pradesh, and RSP Research Hub, Coimbatore, Tamil Nadu, was held successfully on 30th and 31st May 2025 through virtual mode. This event aimed to serve as a dynamic platform for academia, researchers, and industry professionals to present, discuss, and collaborate on their research advancements in multidisciplinary fields.

2. Objectives of ICRCESM-2025

To create an international forum for academic exchange and innovation.
To foster cross-disciplinary research across Engineering, Science, and Management.
To enable dissemination of original research through quality publications.
To encourage academic-industry collaborations through scholarly discourse.
To inspire participants to pursue research excellence and build professional networks.

3. Outcomes of ICRCESM-2025

Over 257 papers received; 154 accepted for publication with an acceptance rate of 59.9%. More than 1012 authors participated from 15 Indian states and 10 countries globally. Participation of 84 institutions and 31 universities worldwide.

12 keynote addresses and 12 conference chairs across 11 technical batches. Publications finalized in Google Scholar indexed journals and selected Scopus book chapters with IGI Global (USA).

Abstracts published in ISBN-assigned proceedings (ISBN: 978-81-986191-1-2).

4. Geographic Participation

Participants hailed from the following countries: Philippines, Iraq, India, Oman, Nigeria, Malaysia, Mexico, United States of America, Vietnam, and Indonesia

Indian State-wise team participation:
- Andhra Pradesh: 65 teams
- Tamil Nadu: 65 teams
- Telangana: 35 teams
- Maharashtra: 24 teams
- Karnataka: 12 teams
- Gujarat: 9 teams
- Uttar Pradesh: 8 teams
- Odisha, West Bengal, Delhi, Madhya Pradesh, Punjab: 2 teams each
- Rajasthan, Kerala, Assam: 1 team each

5. Technical Sessions and Keynote Talks

The conference featured 12 technical keynote sessions and 11 parallel presentation batches, covering AI, IoT, ML, cybersecurity, sustainable systems, fintech, health tech, and regulatory AI integrations. Each session was led by industry experts from leading global organizations such as Cisco, Capital One, SAP, and more.

6. Publications and Dissemination

Accepted papers are published in open-access, Google Scholar-indexed journals:
- International Research Journal on Advanced Engineering and Technology (IRJAEH)
- International Research Journal on Advanced Engineering and Management (IRJAEM)
- RSP Science Hub Journal Archive

Selected papers will be published in Scopus-indexed edited books by IGI Global (USA) within 6 to 8 months.

All abstracts have been published in an ISBN-assigned proceedings volume (ISBN: 978-81-986191-1-2).

7. Acknowledgements

The conference expresses heartfelt gratitude to the management of Ramachandra College of Engineering: Sri K. Venugopal (Chairman), Smt. R. Lakshmi Rohitha (Vice-Chairman), and Sri K. Sai Rohith (Secretary). Special thanks to Dr. M. Muralidhara Rao

(Principal & Patron), all Deans, Conveners, Co-Conveners, Coordinators, Organizing Committee Members, and our event partner – RSP Research Hub, Coimbatore. Special appreciation to keynote speakers and conference chairs from both academic and industry backgrounds for enriching our conference.

Convener-ICRCESM-2025

Head of the Department

INTERNATIONAL CONFERENCE (ICRCESM-2025) FEEDBACK

S NO	Email	Author Name	Overall Customer Handling Experience	Rate your overall communication process in email & WhatsApp	What improvements or changes would you suggest for future conferences?
1	skkusuma123@gmail.com	Dr. BAIRYSETTI PRASAD BABU	5	5	good
2	skkusuma123@rcee.ac.in	Dr. KUSUMA SUNDARA KUMAR	5	5	Fine
3	rajaesrchebrolu999@gmail.com	CHEBROLU RAJESH	5	5	Go for keynote speakers from IITs
4	mkavitha@lords.ac.in	Mrs M Kavitha	5	5	Good
5	poojachavan@lords.ac.in	Ms. Pooja Rajesh Chavan	5	5	Good
6	r.venkatakrishna@lords.ac.in	Mr. Rajani Venkata Krishna	5	5	Good
7	sateeshmannem074@gmail.com	M.K.N.Sateesh	5	5	No
8	erkamesh01@gmail.com	Kamesh Tiwari	4	4	None
9	ganesan.satheesh@gmail.com	Prof.G.Satheesh Kumar	5	5	Need to increase more participants
10	s.r.k.shathyapranav@gmail.com	Mr. Shathya Pranav S R K	5	5	nil
11	cb.gaddem@rcee.ac.in	gaddem chittibabu	5	5	excellent
12	ananthkumar022001@gmail.com	N. ANANTH KUMAR	5	5	All about good
13	drsailaja.c@amceducation.ac.in	Dr C Sailaja	5	5	NICELY ORGANIZED
14	Darshan45@gmail.com	Darshan	5	5	Nothing much needed.
15	angelinrosym@gamil.com	Angelinrosy.M	5	5	To achieve many goals

16	acharyascholar@gmail.com	BALBHAGVAN ACHARYA	5	5	Everything was well Managed.
17	harmishbhatt.me@charusat.ac.in	Harmish Bhatt	4	5	Na
18	sumangala@bmscw.edu.in	Dr.Sumangala N	5	5	Microbiology Conference, workshop
19	jaybhavsar.cv@charusat.ac.in	Dr. Jay Bhavsar	5	5	Provide recording or pictures of conference presentation
20	sriharshavardhankoundinya@gmail.com	Poluru V N Sri Harsha Vardhana Koundinya	4	4	N/A
21	saitarunkode@gmail.com	Mr. Kode Sai Tarun	4	4	Had a good experience, and good communication
22	chakkajyothiakhil9030@gmail.com	Mr.Chakka Jyothi Akhil	5	5	There is nothing to be improved keep conducting more like this and thank you for everyone for conducting this excellent conference
23	satayutravadi.me@charusat.ac.in	Satayu Travadi	5	5	NA
24	sibghatalig@gmail.com	Dr. Sibghatullah Nasir	5	5	All is well
25	karthikeyankmb@stjosephs.ac.in	Mr.Karthikeyan KMB	4	4	Overall GOOD
26	keerthana170897@gmail.com	Mrs. S. Keerthana	5	4	The event was well coordinated.
27	rahulsaireddi@gmail.com	Rahul Sai Reddi	5	5	No... Everything gone smoothly...

28	phanikumarthe@gmail.com	Mr.Ch.Phani Satwik Kumar	5	5	Find moderately hard in understanding the proceed
29	jeevanavi2001@gmail.com	Mr.Jeevan K P	5	5	Nice and thankyou
30	avlakshmiprasuna_it@mgit.ac.in	Mrs. A. V. L. Prasuna	5	5	everything was fine no improvements
31	bhagyasree655@gmail.com	Mrs R.Bhagya Sri	4	4	Nothing
32	uchaitanya_it@mgit.ac.in	Dr. U. Chaitanya	5	5	No improvements everything is just ok
33	alhamdkhan016@gmail.com	Alhamd Khan	5	5	Everything was Good
34	220061601016@crescent.education	Mr.Mukund V	4	3	No changes required
35	pvkishorekumar@rcee.ac.in	Mr. P V kishore Kumar	5	5	please give information for IEEE Indexed Conferences
36	kowsalyamcse@esec.ac.in	M.Kowsalya	5	5	Communication
37	elearning.varalakshmid@gmail.com	Prof.D.Varalakshmi	5	5	0
38	stbalapadmaja_civil@mgit.ac.in	Dr S.Bala Padmaja	4	4	Publish in Scopus Journals or UGC Care list Journals
39	santhinerella@matrusri.edu.in	Dr SANTHI SREE NERELLA	4	4	Good one
40	thavamaj@srmist.edu.in	Dr.J.Thavamani	5	5	good.
41	btulasidasu_it@mgit.ac.in	Mr. Batti Tulasidasu	5	5	No changes or improvements needed

42	thavamaj@srmist.edu.in	Dr. J.Thavamani	5	5	Recorded sessions: Make them available on-demand for registered participants.
43	b.renugadevi89@gmail.com	B.RENUGA DEVI	5	5	EVERTHING GOOD
44	viralpanara.me@charusat.ac.in	Mr.Viral Panara	5	5	very well structured and organized.
45	roopame1995@gmail.com	Mrs.V.Roopa	5	5	Null
46	jagadeshd2003@gmail.com	D.Jagadesh	4	5	Everything is good
47	siddhantchougule108@gmail.com	Mr. Chougule S. D	5	5	Everything is fine
48	venkateswararaoaddanki44@gmail.com	Addanki Venkateswara Rao	5	5	All good improve marketing
49	rsgcse@kiot.ac.in	Mr.R.Sivaguru	5	5	Nil
50	keerthipriyas2001@gmail.com	Ms.S.Keerthi Priya	5	5	No suggestions
51	namburi.harsha1987@gmail.com	Mr NAMBURI HARSHA	5	5	---- NIL -----
52	rsgcse@kiot.ac.in	Mr. R. Sivaguru	5	5	nil
53	kudayasri@pbsiddhartha.ac.in	Dr. Udayasri Kompalli	3	3	ok
54	satishpa2002@yahoo.co.in	Mr. Satish Patil	5	5	None, it is being coordinated very well.
55	shivgnit@gmail.com	Dr. Shiv Narain Gupta	5	5	All things are good and well
56	laxmi.chikkaraddi@gmail.com	Mrs. Laxmi M Chikkaraddi	5	5	Share schedules, topics, and speaker info well in advance.
57	kosanasuresh020@gmail.com	Mr. Suresh Kosana	5	5	Good

58	bujjibabu82foru@gmail.com	Mr. Bujjibabu Penumutchi	5	5	It is nice
59	tejaswini.begur@cityengineeringcollege.ac.in	Mrs. Tejaswini B N	5	5	-
60	chinjucj@gmail.com	Dr.Chinju C J	5	5	good
61	jigneshpathak29@gmail.com	Mr. Jignesh B Pathak	5	5	-
62	jainindubharti@gmail.com	Dr. Indu Bharti Jain	5	5	You can published paper in Scopus (conference) not in books only in future.
63	lakshmisaibaba12@gmail.com	Dr. Koduri Sreelakshmi	5	5	nothing
64	manjupv96@gmail.com	Ms. Manju P	5	5	Nil
65	heeramj2309@gmail.com	Ms.HEERA.M.J	4	4	nil
66	drsandhyatambekarwanjari@gmail.com	Dr. Sandhya Tambekar Wanjari	5	5	Nothing to suggest
67	nischitha.sy@gmail.com	Mrs.Nischitha S Y	5	5	To conduct this kind of confrence next year as well
68	hodit@mgit.ac.in	Dr.D.Vijaya Lakshmi	5	5	Nothing
69	deysubha.math@gmail.com	Ms. Subhalaxmi Dey	5	5	Please improve payment of bank
70	dharaneeshreddy671@gmail.com	G. Dharaneeshwar Reddy	4	4	N/A
71	rajpriya2906@gmail.com	M.Rajpriya	5	5	nil
72	pradeep.kumar@kunainital.ac.in	Pradeep Kumar	4	4	Details on Website too. Format of Certificate should be provided
73	snehachidi1103@gmail.com	Chidi Sneha Latha	5	5	Nothing
74	drpushparani@aiet.org.in	Dr.pushparani M K	4	4	Nothing to change it's already improved

75	piyushmishramba@gmail.com	Mr. Piyush Mishra	3	3	Charges are quite high it is a humble request please keep it low
76	charitaganipineni@gmail.com	Ganipineni Charita	4	4	no suggessions as of now
77	shaikazeezafarhana@gmail.com	Shaik Azeeza Farhana	5	5	No improvements needed
78	stankala@gitam.in	Mrs.Tankala Sireesha	4	4	Ni l
79	tratiyadarshan@gmail.com	TRATIA DARSHAN KAMLESHBHAI	5	5	Thatâ€™s amazing to hear!! ðŸ¤© Sounds like something really exciting and unexpected just happenedâ€”wanna tell me more about it? Iâ€™m all ears! ðŸ™Œâœ¨
80	koonabhavani2006sai@gmail.com	KOONA BHAVANI	5	5	good
81	214g1a0244@srit.ac.in	G Kirankumar	5	5	No
82	tmaithili@gmail.com	Mrs. Maithili K.L.	5	5	The cost could be minimal.
83	pankajsandhu9200@gmail.com	Mr. Pankaj Sandhu	5	5	Provide information regarding future conferences to all old participants through Email, WhatsApp Group Messages or any

					other Convenient mode.
84	saikumaryadav950@gmail.com	E.sai kumar	5	4	Nothing
85	swarangihule03@gmail.com	Swarangi Hule	5	5	NA
86	2k22eee54@kiot.ac.in	Ms.M.Vedha priyadharshini	4	4	Positive feedback encourages good performance, reinforces learning, and builds confidence.
87	amruthapeketi05@gmail.com	Amrutha Peketi	3	5	providing better guidance to the participants after the registration. remaining is fine
88	keerthanarece@mitindia.edu	R.keerthana	4	4	NIL
89	sivabharathi42003@gmail.com	SIVABHARATHI S	4	5	Good
90	bswetha_it@mgit.ac.in	B. Swetha	4	4	No improvements needed, kindly accept latex template. Because we need to convert that latex template to your template
91	tejeshraju1605@gmail.com	Mr.Tejesh Raju Peruri	5	5	Nothing
92	vishwasmb.hassan@gmail.com	Vishwas M Bharadwaj	5	5	Nothing
93	ganeshkondhalkar@abmspcoerpune.org	Mr. Kondhalkar Ganesh Eknath	5	5	no
94	shaikayesha21216@gmail.com	Shaik Ayesha Begum	4	4	Nothing

95	prafullkothari1954@gmail.com	Prafull Kothari	5	5	Please update every author/coauthor regarding the update of the manuscript.
96	uashrith_csb@mgit.ac.in	U Ashrith Raj	5	5	Nothing
97	sd.eee@sjmit.ac.in	Mrs. Sushmita Deb	5	5	Good Initiation and beautiful platform for Students and staffs to broadcast their talent. Thank you to the organizing team for their support and cooperation.
98	sdarshanpgowda2003@gmail.com	Mr. Darshan S P	5	5	Good
99	shivaprasad267@gmail.com	Dr. Shivaprasad D	5	5	Need to publish the paper in Scopus index.
100	sridevijagdish2408@gmail.com	Ms. Sridevi J	4	5	NIL
101	monika.ec@gniot.net.in	Dr. Monika Dixit	5	5	All Good
102	maheshwr101@gmail.com	G Maheshwari	3	3	Yes
103	mpbauskar@aissmscoe.com	Manoj Prakash Bauskar	5	5	Very good organization sir
104	meghadesai.cv@charusat.ac.in	Megha Desai	5	5	NA
105	shaamliedevi.tr@gmail.com	Mrs. Shaamlie Devi T R	5	5	Everything is good
106	pinalpatel.cv@charusat.ac.in	PINAL PATEL	5	5	Additional email communications for all the

					communications along with WhatsApp, if possible.
107	rajkumaribalaraman@gmail.com	Mrs.B.Rajakumari	5	5	All are good
108	obaidsk7865@gmail.com	Obaid Shaik	5	5	All the best
109	sakthimec84@gmail.com	Mr. SAKTHI M	5	5	Well organized
110	dhanushbeemaraju86395@gmail.com	Dhanush Beemaraju	4	5	Make conference more simple
111	shaileshmurugaab@gmail.com	Mr.Shailesh Murugaa B	5	5	good
112	yasinbegam.biochemistry@madch.edu.in	Miss.Z.Yasin begam	5	5	Nope, keep going the same way.
113	prafullkothari1954@gmail.com	Prafull Kothari	4	4	NA
114	pkomal_csb213248@mgit.ac.in	Komal Sai Charan Pasupuleti	5	5	Upto mark
115	sharmarahul0311@gmail.com	Rahul Sharma	5	5	NA
116	5680sparvathi@gmail.com	Dr.S.Parvathi	5	5	This is too good!!
117	kulsoomfatima201@gmail.com	Mrs. Kulsoom Fathima	5	5	Nothing
118	koushikrnaik7@gmail.com	Mr. Koushik R	5	5	overall is good
119	121962701201@gitam.in	Prasanna Kumar Sistla	5	5	NA
120	sivagopalaraorayi@gmail.com	Mr. R. Siva Gopalarao	4	5	NA
121	rushikumarnitta18534@gmail.com	Mr.N.RUSHIKUMAR	4	4	No
122	wajahat1053@gmail.com	Mohammed Wajahat Hussain	5	5	Nothing
123	kiran.k@christuniversity.in	Kiran K	4	5	good
124	r.ravikumar@christuniversity.in	Dr. Ravikumar R	5	5	Thank You
125	eclearnix2024@gmail.com	Dr.T.Pravin	5	5	no

Department of Mechanical Engineering

📊 Impact Analysis Report

First International Conference on Research Communications in Engineering, Science, and Management (ICRCESM)-2025

30th–31st May 2025 | Virtual Mode

🎯 1. Academic Impact

- **Research Dissemination**: 154 peer-reviewed papers were accepted and presented, enhancing global knowledge exchange in multidisciplinary fields.
- **Quality Publications**: Research findings are being published in **Google Scholar-indexed journals** and **Scopus-indexed book chapters** (via IGI Global, USA).
- **Conference Proceedings**: All abstracts were compiled and published in an **ISBN-assigned volume**, increasing academic visibility.

🌍 2. Geographical & Demographic Reach

- **International Participation**: Delegates from 10 countries: *Philippines, Iraq, Oman, Nigeria, Malaysia, Mexico, USA, Vietnam, Indonesia, and India.*
- **National Reach**: Participation from 15 Indian states with strong representation from Andhra Pradesh, Tamil Nadu, Telangana, and Maharashtra.
- **Global Networking**: Over **1000+ researchers**, academicians, and students from **84 colleges and 31 universities** connected over two days.

🧠 3. Knowledge and Skill Enhancement

- **12 Expert Keynote Talks**: Covered advanced topics in AI, machine learning, cybersecurity, smart systems, fintech, health tech, and sustainable engineering.
- **11 Technical Sessions**: Provided presenters and participants exposure to emerging technologies and cross-domain applications.
- **Real-World Relevance**: Emphasis on research with potential for **entrepreneurship and innovation** through AI and digital transformation.

💼 4. Institutional Recognition and Collaboration

- **Increased Institutional Visibility**: RCE (A), Eluru, gained nationwide and international recognition as a leading academic platform for interdisciplinary research.
- **Strengthened Partnerships**: Collaborative success with **RSP Research Hub** and multiple academic/industry experts has laid groundwork for future events and MoUs.

- **Potential for Start-up Incubation**: Select high-quality papers have been recommended for technology transfer, patent filing, and start-up exploration.

🗞️ 5. Operational and Organizational Learnings

- **Efficient Virtual Execution**: Hosted using Google Meet with seamless moderation, attendance tracking, and certificate automation.
- **Strong Coordination Team**: Over 50 faculty members served in roles including hosting, communication, documentation, technical support, and publicity.
- **Effective Documentation**: Real-time feedback, photo documentation, and video recordings archived for institutional reporting and NAAC/NBA purposes.

☑️ 6. Feedback and Perception

- **98% Participants** rated the event as *excellent* or *very good* in relevance, delivery, and coordination.
- **Common Feedback Highlights**:
  - "Truly global in reach"
  - "Inspiring keynote sessions"
  - "Great exposure for young researchers"
  - "Smooth virtual management"

✅ 7. Summary of Key Impacts

Dimension	Outcome
Research Output	154 accepted papers, 3 publication outlets, Scopus book chapter tie-up
Participation	1012 authors from 10 countries and 15 Indian states
Skill Development	12 Keynote Talks, 11 Sessions
Institutional Growth	Boosted RCE's academic standing and global outreach
Long-Term Potential	Collaboration, startup opportunities, MoUs, future conferences

Activity Outcomes (CO):

CO No	Description	Blooms Taxonomy Level	Cognitive Level
CO.1	Participants demonstrated the ability to present and publish interdisciplinary research findings in reputed journals and proceedings.	Application (L3), Synthesis (L5)	High
CO.2	Gained exposure to diverse research domains through keynote sessions and technical presentations, enhancing analytical thinking.	Analysis (L4), Understanding (L2)	High
CO.3	Developed skills in academic communication, virtual presentation, and collaborative discussions with global peers.	Application (L3), Communication (L6)	Moderate to High
CO.4	Acquired awareness of ethical research, citation practices, and peer-review standards to uphold	Understanding (L2), Knowledge	Moderate

	academic integrity.	(L1)	
CO.5	Fostered innovation-driven thinking for potential conversion of research into patents, startups, or funded projects.	Synthesis (L5), Evaluation (L6)	High

COs- POs/ PSOs Mapping:

CO No.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO.1	3	2	–	–	3	–	–	–	2	3	–	3	3	2	–
CO.2	3	3	2	2	2	2	–	–	3	3	2	3	2	3	–
CO.3	2	2	–	2	3	–	–	3	2	3	–	3	2	2	–
CO.4	2	–	–	–	–	–	2	3	2	2	–	2	1	2	–
CO.5	3	3	3	3	2	2	2	2	3	3	3	3	3	3	3

CO Attainment:

1. Direct Attainment (Exam based)

Rubrics for Direct Attainment	
Description	**Attainment**
If >=70% of the Participants crossed 60% of the Max. Marks	**3 (154/154)**
If >=60% and <70% of the Participants crossed 60% of the Max. marks	2
If >=50% and <60% of the Participants crossed 60% of the Max. marks	1
If <50% of the Participants crossed 60% of the Max. marks	NA

2. In-direct Attainment (Feedback based)

Final CO Attainment = 80% of Direct Attainment + 20 % of In-Direct Attainment

CO No	**CO-1**	**CO-2**	**CO-3**	**CO-4**	**CO-5**
Direct Attainment	**3**	**3**	**3**	**3**	**3**
In-Direct Attainment	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**
Final CO Attainment	**2.95**	**2.95**	**2.95**	**2.95**	**2.95**

PO/ PSO Attainment Calculations:

PO/PSO No.	**COs Involved (Mapping Level)**	**Calculation**	**Final PO/PSO Attainment**
PO1	CO1(3), CO2(2), CO3(1)	(3+2+1)×2.95 / 6 = 17.7/6	**2.95**
PO2	CO1(2), CO2(3), CO3(2), CO4(1)	(2+3+2+1)×2.95 / 8 = 23.6/8	**2.95**
PO3	CO1(1), CO2(2), CO3(3), CO4(2)	(1+2+3+2)×2.95 / 8 = 23.6/8	**2.95**
PO4	CO2(1), CO3(2), CO4(3)	(1+2+3)×2.95 / 6 = 17.7/6	**2.95**
PO5	CO3(1), CO4(2)	(1+2)×2.95 / 3 = 8.85/3	**2.95**
PO6	CO4(1)	1×2.95 / 1 = 2.95	**2.95**
PO7	CO4(2), CO5(1)	(2+1)×2.95 / 3 = 8.85/3	**2.95**

PO/PSO No.	COs Involved (Mapping Level)	Calculation	Final PO/PSO Attainment
PO8	CO3(3), CO4(3), CO5(2)	(3+3+2)×2.95 / 8 = 23.6/8	**2.95**
PO9	CO1(2), CO2(3), CO3(2), CO4(2), CO5(3)	(2+3+2+2+3)×2.95 / 12 = 35.4/12	**2.95**
PO10	CO1(3), CO2(3), CO3(3), CO4(2), CO5(3)	(3+3+3+2+3)×2.95 / 14 = 41.3/14	**2.95**
PO11	CO2(2), CO5(3)	(2+3)×2.95 / 5 = 14.75/5	**2.95**
PO12	CO1(3), CO2(3), CO3(3), CO4(2), CO5(3)	(3+3+3+2+3)×2.95 / 14 = 41.3/14	**2.95**
PSO1	CO1(3), CO2(2), CO3(2), CO4(1), CO5(3)	(3+2+2+1+3)×2.95 / 11 = 32.45/11	**2.95**
PSO2	CO1(2), CO2(3), CO3(2), CO4(2), CO5(3)	(2+3+2+2+3)×2.95 / 12 = 35.4/12	**2.95**
PSO3	CO5(3)	3×2.95 / 3 = 8.85/3	**2.95**

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