About Conference

The Fourth International Conference on Modern Computing Trends and Technology (ICMCTT-IV) 2024 promises to be a milestone event in the field of research. This Collaborative endeavour 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 Fourth International Conference on Modern Computing Trends and Technology (ICMCTT-IV) 2024 - Organized by Department of Computer Application, Kristu Jyoti College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India

Date of the Conference:28th & 29th November 2024

ICMCTT-IV
2024

Editor
Ms. Binny S
Dr. Susheel George Joseph,
Mr. Roji Thomas
Dr. Mohammed H. AlAqad

Abstract Book Proceedings of Fourth International Conference on Modern Computing Trends and Technology (ICMCTT-IV) 2024 - Organized by Department of Computer Application, Kristu Jyoti College of Management and Technology, Chethipuzha P.O, Changanacherry, Kerala, India.

Editor (s)

Mrs. Binny S

Associate Professor, Research & IPR Cell Coordinator,

Kristu Jyoti College of Management and Technology, Kerala, India.

Dr. Susheel George Joseph

Associate Professor, Department of Computer Application,

Kristu Jyoti College of Management and Technology, Kerala, India.

Mr. Roji Thomas

HOD, Department of Computer Application,

Kristu Jyoti College of Management and Technology, Kerala, India.

Dr. Mohammed H. AlAqad

Associate Professor,

Hashim Sani Centre for Palestine Studies, Universiti Malaya, Malaysia.

Published by

RSP Research Hub

Coimbatore, Tamil Nadu, India – 641035

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Preface

Fourth International Conference on Modern Computing Trends and Technology (ICMCTT-IV) 2024 - Organized by Department of Computer Application, Kristu Jyoti College of Management and Technology, Chethipuzha P.O, Changanacherry, Kerala, India held successfully during November 28th & 29th, 2024. 175 teams from 11 Countries including Nigeria, Indonesia, Egypt, Iraq, Japan, Oman, Philippines, USA, Armenia, Malaysia and PAN India including 20 Indian states from 43 reputed Universities and 82 Colleges were participated in this conference. The objective of this conference is to bring together entrepreneurs, academicians, research scholars and post-graduate students from around the world to encourage, acknowledge and support research in all these areas by providing opportunity for them to exchange and share their experience, fresh concepts, 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, As Keynote speakers Dr. Mohammed H. AlAqad, Associate Professor, Hashim Sani Centre for Palestine Studies, Universiti Malaya, Malaysia discussed about The Use of AI in the Academic Peer Review. On second day, Dr. T. C. Manjunath, Dean - R & D and Professor, Department of ECE, Raja Rajeswari College of Engineering, Kumbalgodu, Bengaluru, Karnataka, India discussed about The Recent Advances in the Development of Nano-Machines in Bio-Medical Engineering Applications.

Conference Chair members are Mr. Shanmugasundaram Senathipathi, Consulting Manager, Capgemini America Inc, Chicago, Illinois, USA, Dr. Kavitha Balamurugan, Professor and Head, Department of Electronics and Communication Engineering, KCG College of Technology, Chennai, Tamil Nadu, India, CMA Dr. Natika Poddar, Associate Professor, Finance at St. Francis Institute of Management and Research, Mumbai, India, Dr. S. Durga, Associate Professor, Department of Management Studies, Vignan University, Andhra Pradesh, India, Dr. Ketki Kshirsagar, Associate Professor, Department of E & TC, Vishwakarma Institute of Information Technology, Pune, Maharashtra, India, Dr. Sujithra Muthuswamy, Associate Professor, Department of Data Science Coimbatore Institute of Technology, Coimbatore, Tamil Nadu, India, Dr. A. M. Arun Mohan, Associate Professor, Department of Civil Engineering, Sethu institute of Technology, Virudhunagar, Tamil Nadu, India, and Dr. Monica Bhutani, Associate Professor, Department of Electronics and Communication Engineering, Bharati Vidyapeeth College of Engineering, New Delhi, India. .

10 Oral Sessions are planned and successfully held under the joint efforts of Conference chair members, Presenters and Conference members through online mode. Many recent trend topics are discussed. Best presentations were selected under UG, PG, Research Scholar and Faculty category which were evaluated by Conference chair members as per given rubric sheet. 175 abstracts are included in this proceedings have been classified into 10 focus research areas to corresponding sessions held at the conference. The conference group would like to express their 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, we would like to thank organising committee for their 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 ICMCTT 2024 have enjoyed a wonderful and fruitful time during the conference.

PROCEEDINGS OF

ICMCTT- 2024

Fourth International Conference on Modern Computing Trends and Technology

Organized by

Organized by Department of Computer Application, Kristu Jyoti College of Management and Technology, Chethipuzha P.O, Changanacherry, Kerala, India

&

RSP Research Hub, Coimbatore, Tamil Nadu, India

Abstract Proceedings

(Special Edition)

About the College

Kristu Jyoti College of Management & Technology Chethipuzha came into being in the year 2002.It is affiliated to Mahatma Gandhi University and given tacit approval by All India Council for Technical Education, New Delhi (AICTE). It accords the Undergraduate and Postgraduate courses such as MCA, M.Com Finance and Taxation, MSW, MA. HRM & MSc Psychology at the Postgraduate level and BBA, BCA, B.Com Computer Application, B.Com Finance and Taxation ,BSc Psychology, BSW, BSc Geology and B.Sc Cyber Forensics at the Undergraduate level. At present the college has a strength of more than 1700 students and consists of 80 faculties. The college is renowned for conducting curricular and extracurricular activities of manifold nature such as business fest, literary fest, national seminars, inter collegiate competitions, publication of ISBN oriented books, socially relevant awareness campaigns, humanitarian deeds and research initiatives.

About the Department

The Department of Computer Application, was established in 2002, with MCA course (Approved by AICTE New Delhi) with and intake of 60 students. Later, BCA course has been started in the year 2010. Both the courses are affiliated to MG University, Kottayam. Ever since its inception, the Department of Computer Application is marking an outstanding impression on the student community and supplying skilled software professionals to corporate all over the globe. Research Hub is a new initiative by Department of Computer Application. The Research hub aims to become a platform for those students who wish to come out from their comfort zone and work on developing their academic skills. The department provide a sound foundation of theoretical concepts, in-depth working knowledge of technology and hands-on experience in computer hardware and software. It helps students to explore emerging trends and improve creative skills and provide quality education in the field of computer science.

About the RSP Research Hub

RSP Research Hub is organizing an international peer-reviewed conference dedicated to Advancements in Sciences, Engineering and technology. It promotes collaborative excellence between academicians and professionals from academics. The objective of the RSP Research Hub is to provide an opportunity for academicians and industrialists from various fields with cross-disciplinary interests to bridge the knowledge gap and promote research esteem and the evolution of pedagogy. This conference is an amalgamation of industrialists, and academia where they can gear up knowledge. Our gratitude towards people who are concerned about advancements in the hub of research, and we cordially invite them to gear up and make the congress an unforgettable successful event.

About the Conference – ICMCTT 2024

The Fourth International Conference on Modern Computing Trends and Technology (ICMCTT 2024) is a prominent global event that brings together thought leaders, researchers, and professionals from the computing and technology sectors. This conference aims to showcase the latest advancements in modern computing, artificial intelligence, machine learning, data science, cybersecurity, and other emerging technologies. ICMCTT 2024 offers a unique platform for presenting innovative research, exchanging ideas, and discussing cutting-edge trends shaping the future of computing and technology. The conference features keynote addresses from renowned experts, interactive panel discussions, hands-on workshops, and poster sessions, all fostering a collaborative environment for knowledge sharing. ICMCTT encourages interdisciplinary research by facilitating dialogue between academia and industry, promoting the development of practical solutions to global challenges. This event is designed to inspire future collaborations, enhance networking opportunities, and drive forward progress in the field of computing technology. Through its collective efforts, ICMCTT 2024 aims to contribute to the advancement of the computing field and its positive impact on society's technological growth and development.

Conference Committee Members - ICMCTT-2024

Chief Patron

- Dr. Thomas Kallukalam CMI, Manager, KJCMT, Kerala, India.

Patron

- Fr. Dr. Joshy George CMI, Principal, KJCMT, Kerala, India.
- Dr. Joseph Sam Vice Principal, KJCMT, Kerala, India.

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- Mrs Binny .S, Associate Professor, Research & IPR cell coordinator, KJCMT, Kerala, India.

Organizing Committee

- Ms. Thushara Sojana, Assistant Professor, KJCMT, Kerala, India.
- Ms Dr. Twinkle Winkle Jacob, Associate Professor, KJCMT, Kerala, India.
- Ms Arya P Unnikrishnan, Assistant Professor, KJCMT, Kerala, India.
- Ms Soumya Koshy, Assistant Professor, KJCMT, Kerala, India.
- Ms Krupa Rupa Dinah Mathews, Assistant Professor, KJCMT, Kerala, India.
- Ms Bibin Joseph, Assistant Professor, KJCMT, Kerala, India.
- Ms Anu Joseph, KJCMT, Kerala, India.

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- Ms. S.K. Sridhanusha, Technical Assistant, RSP Science Hub, Coimbatore, India.
- Ms. Vanithamani R, Coordinator, RSP Science Hub, Coimbatore, India.
- Ms. Sindhuja D, Graphic Designer, RSP Science Hub, Coimbatore, India.
- Ms. B. Teena Merlaein, Graduate Trainee, RSP Science Hub, Coimbatore, India.

Advisory Committee

- Dr. Bastian K.S, Director Department of Computer Application, KJCMT, Kerala, India.
- Fr. Akhil Karikkathara CMI, Bursar, KJCMT, Kerala, India.
- Mr. Roji Thomas, HOD, Department of Computer Application, KJCMT, Kerala, India.
- Dr. Anu Antony Associate Professor Department of commerce and IQAC Coordinator, KJCMT, Kerala, India.

Conference Coordinator

- Dr. Susheel George Joseph, Associate Professor Department of computer Application, KJCMT, Kerala, India.

Student Coordinators

- Anu Raj T.R
- Febin George Jacob
- Arjun Santhosh

Conference Editors

- Mrs. Binny S, Associate Professor, Research & IPR Cell Coordinator, Kristu Jyoti College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India.
- Dr. Susheel George, Joseph Associate Professor, Department of Computer Application, Kristu Jyoti College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India.
- Mr. Roji Thomas, HOD, Department of Computer Application, Kristu Jyoti College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India.
- Dr. Mohammed H. AlAqad, Associate Professor, Hashim Sani Centre for Palestine Studies, Universiti Malaya, Malaysia.

Glimpses of the Conference

Editors

Conference Editor – I

Mrs. Binny S

Associate Professor, Research & IPR Cell Coordinator, Kristu Jyoti College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India.

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Conference Editor – III

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HOD, Department of Computer Application, Kristu Jyoti College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India.

Conference Editor – IV

Dr. Mohammed H. AlAqad

Associate Professor,
Hashim Sani Centre for Palestine Studies,
Universiti Malaya, Malaysia.

Keynote Speakers

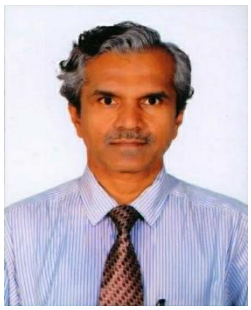
Technical Session – I

Dr. Mohammed H. AlAqad

Associate Professor,
Hashim Sani Centre for Palestine Studies,
Universiti Malaya, Malaysia.

Topic: Use of AI in the Academic Peer Review.

Technical Session – II



Dr. T. C. Manjunath

Dean - R & D and Professor,
Department of ECE,
Raja Rajeswari College of Engineering,
Kumbalgodu, Bengaluru, Karnataka, India.

Topic: Recent Advances in the Development of Nano-Machines in Bio-Medical Engineering Applications.

Conference chair(s)

Mr. Shanmugasundaram Senathipathi

Consulting Manager,
Capgemini America Inc,
Chicago, Illinois ,USA.

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Professor and Head,
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KCG College of Technology, Chennai,
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CMA Dr. Natika Poddar

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Dr. S. Durga

Associate Professor,
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Andhra Pradesh, India.

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Dr. Sujithra Muthuswamy

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Department of Data Science,
Coimbatore Institute of Technology,
Coimbatore, Tamil Nadu, India.

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Sethu institute of Technology, Virudhunagar,
Tamil Nadu, India.

Dr. Monica Bhutani

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Bharati Vidyapeeth College of Engineering, New Delhi, India.

Dr. Ashish Avasthi

Professor,

Department of Computer Science,

Poornima University, Jaipur

Rajasthan, India.

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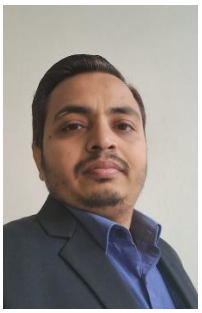

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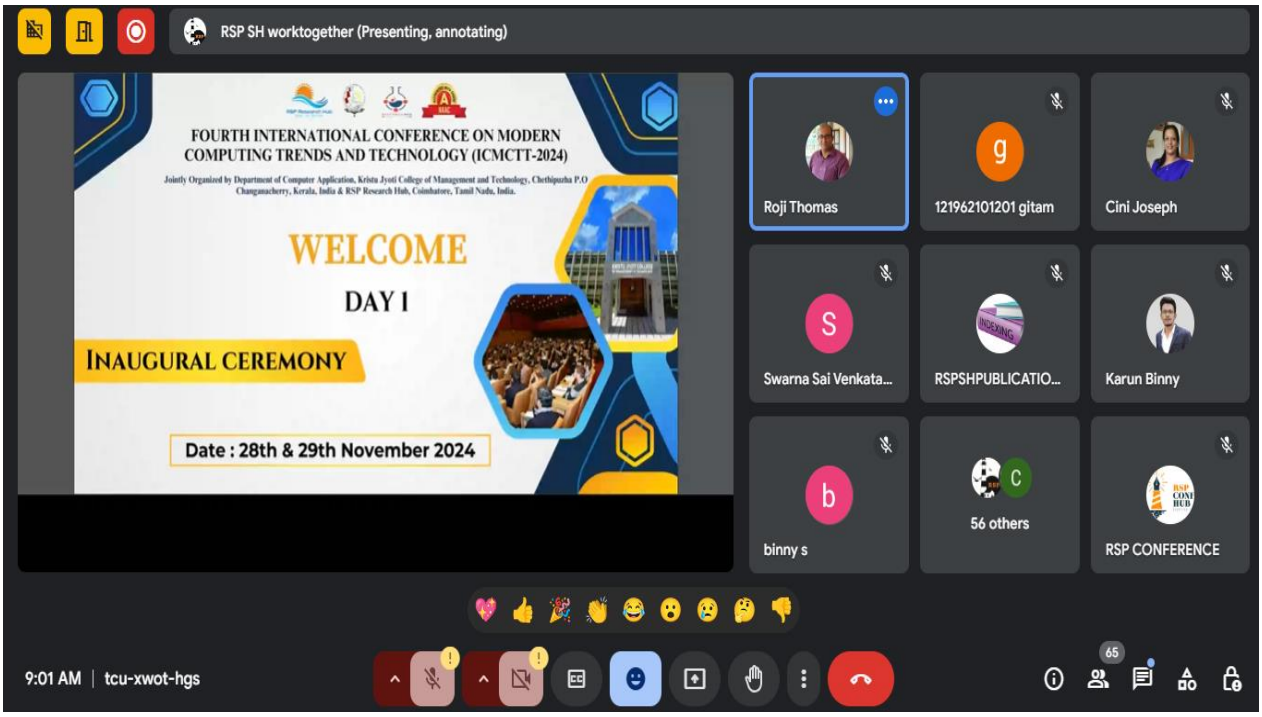
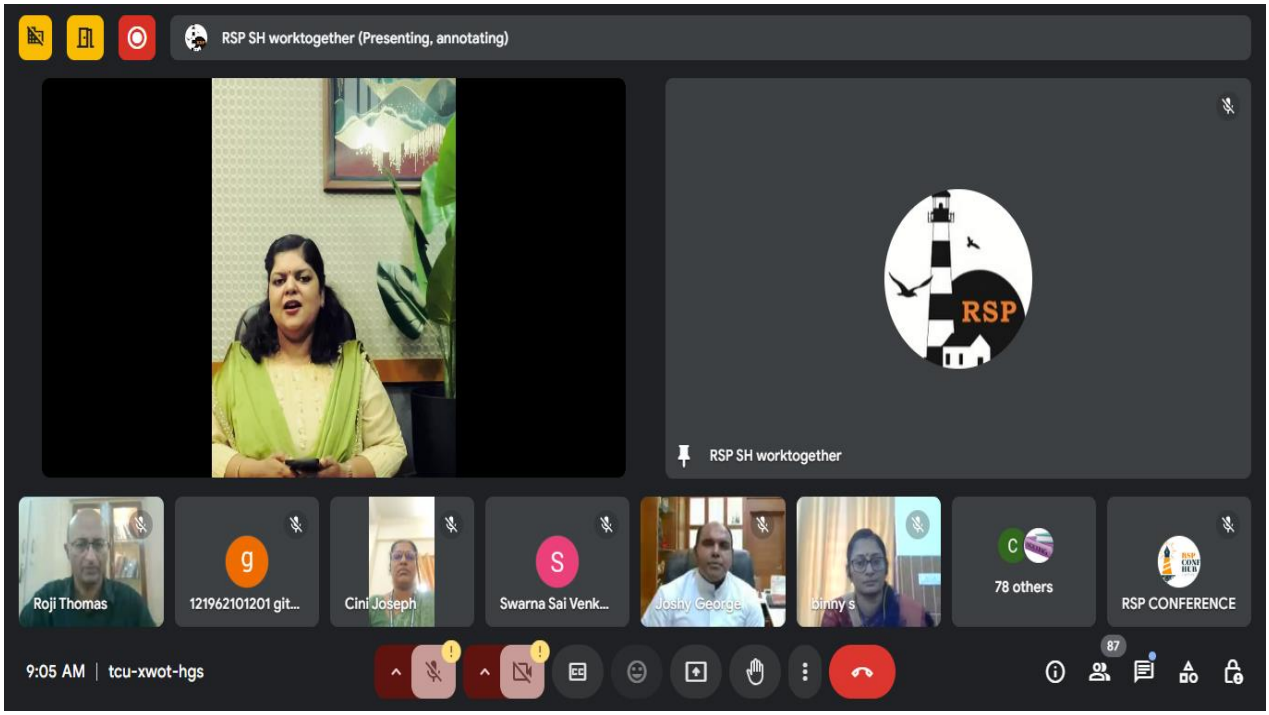
Department of Computer Science and Engineering,

Amity university Lucknow Campus,

Uttar Pradesh, India.

Pictures of ICMCTT 2024






RSP SH worktogether (Presenting, annotating)
FOURTH INTERNATIONAL CONFERENCE ON MODERN COMPUTING TRENDS AND TECHNOLOGY (ICMCTT-2024)
WELCOME SPEECH
Mr. Roji Thomas
HOD,
Department of Computer Application,
KJCMT, Kerala, India.
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RSP CONFERENCE
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RSP SH worktogether (Presenting, annotating)
FOURTH INTERNATIONAL CONFERENCE ON MODERN COMPUTING TRENDS AND TECHNOLOGY (ICMCTT-2024)
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Fr. Dr. Joshy George CMI
Principal,
Kristu Jyoti College of Management and Technology, Chethipuzha P.O
Changanacherry, Kerala. India.
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110 others
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RSP SH worktogether (Presenting, annotating)
FOURTH INTERNATIONAL CONFERENCE ON MODERN COMPUTING TRENDS AND TECHNOLOGY (ICMCTT-2024)
CONFERENCE SPEECH
Mrs. Binny S
Conference Convenor-ICMCTT,
Associate Professor,
Research & IPR Cell Coordinator,
Kristu Jyoti College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India.
Hari Narayan
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113 others
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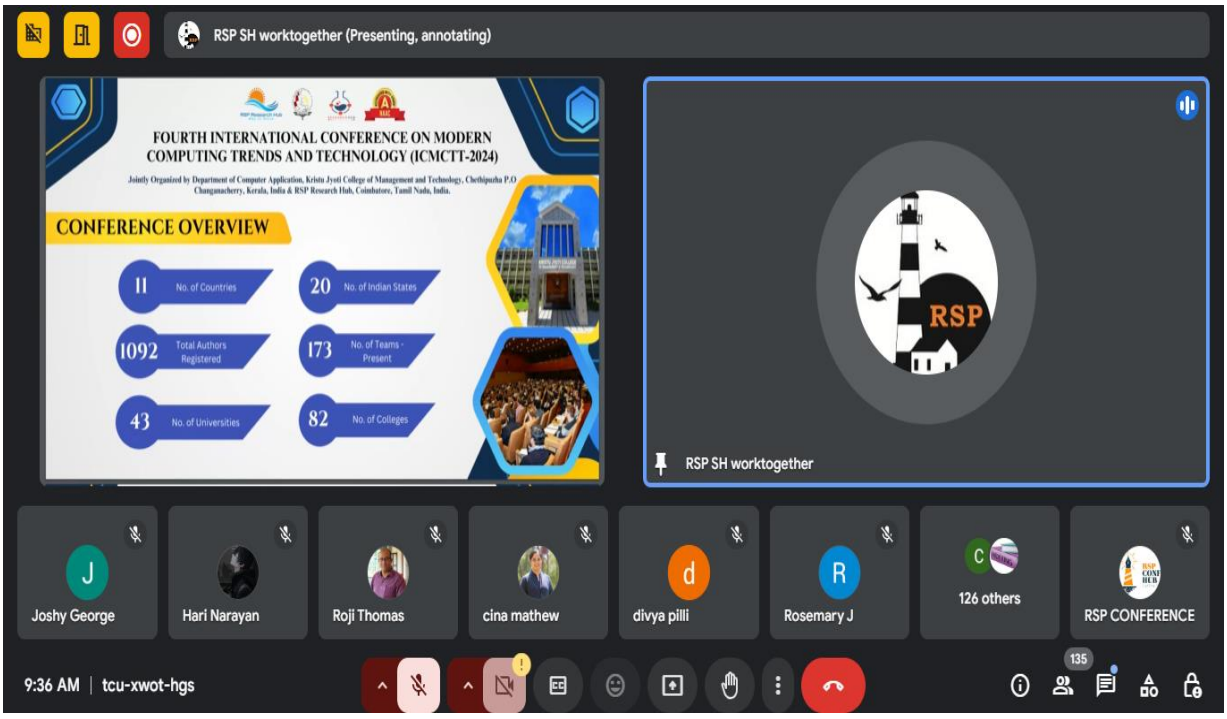
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FOURTH INTERNATIONAL CONFERENCE ON MODERN COMPUTING TRENDS AND TECHNOLOGY (ICMCTT-2024)
CONFERENCE OVERVIEW
11 No. of Countries
20 No. of Indian States
1092 Total Authors Registered
173 No. of Teams Present
43 No. of Universities
82 No. of Colleges
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RSP CONFERENCE
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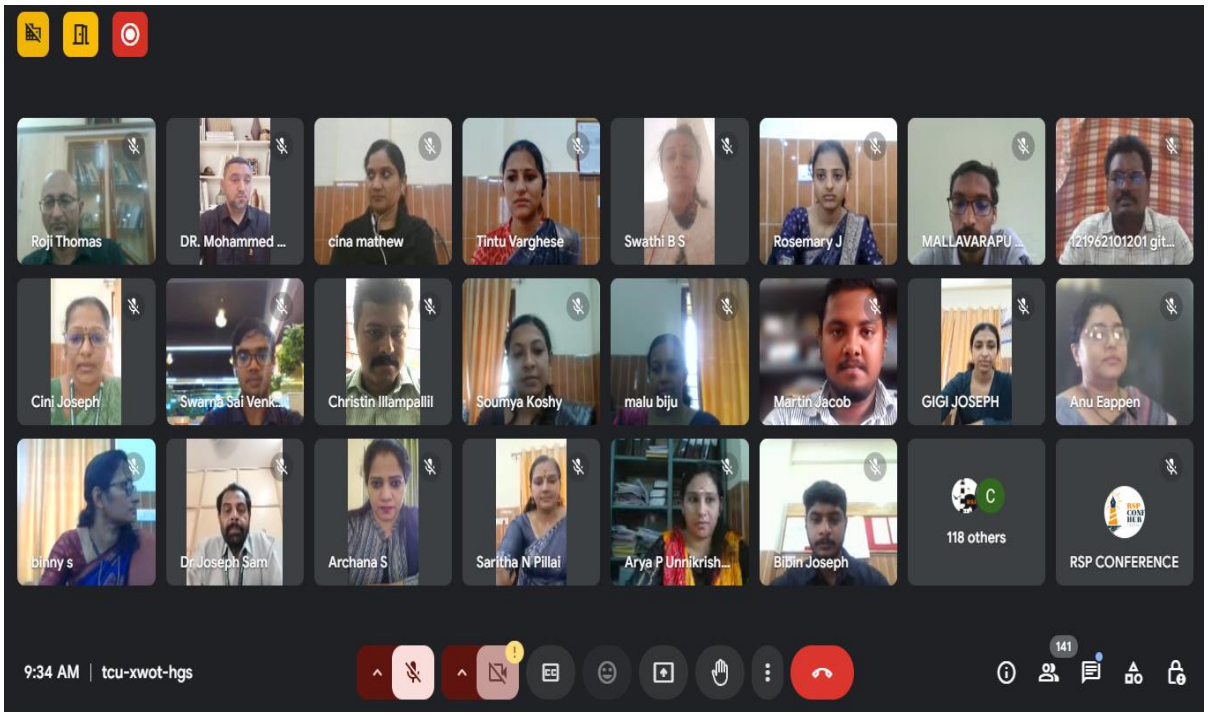
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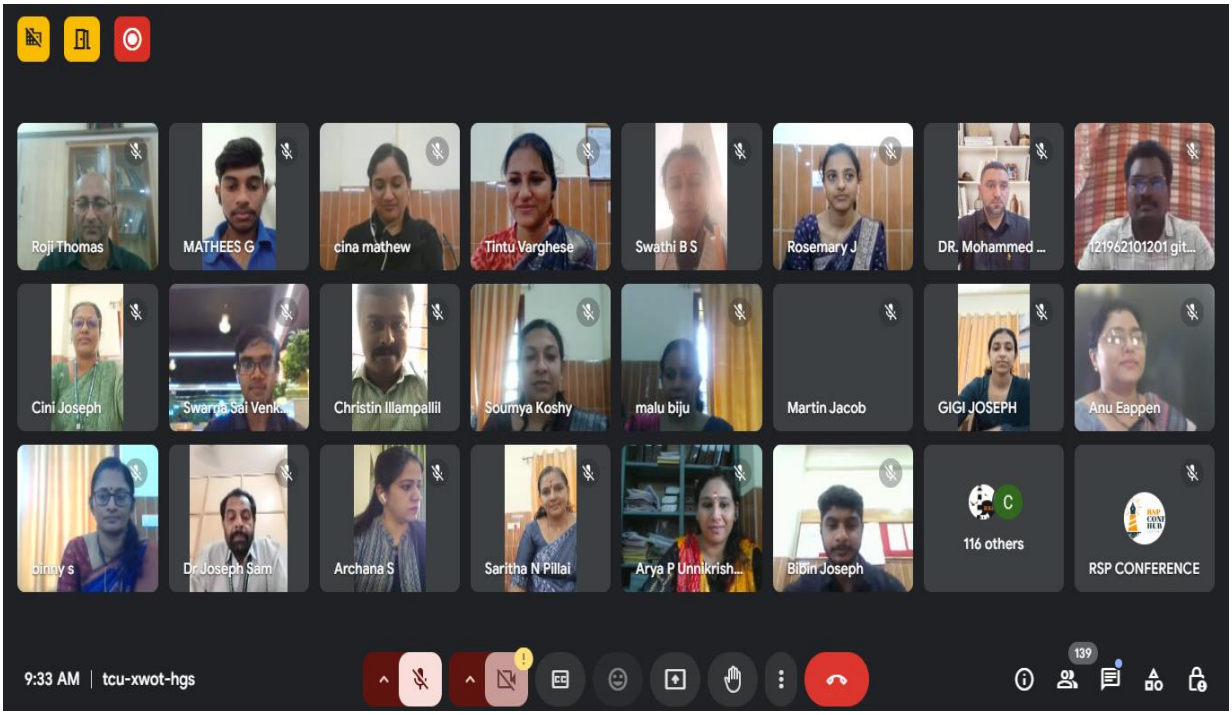
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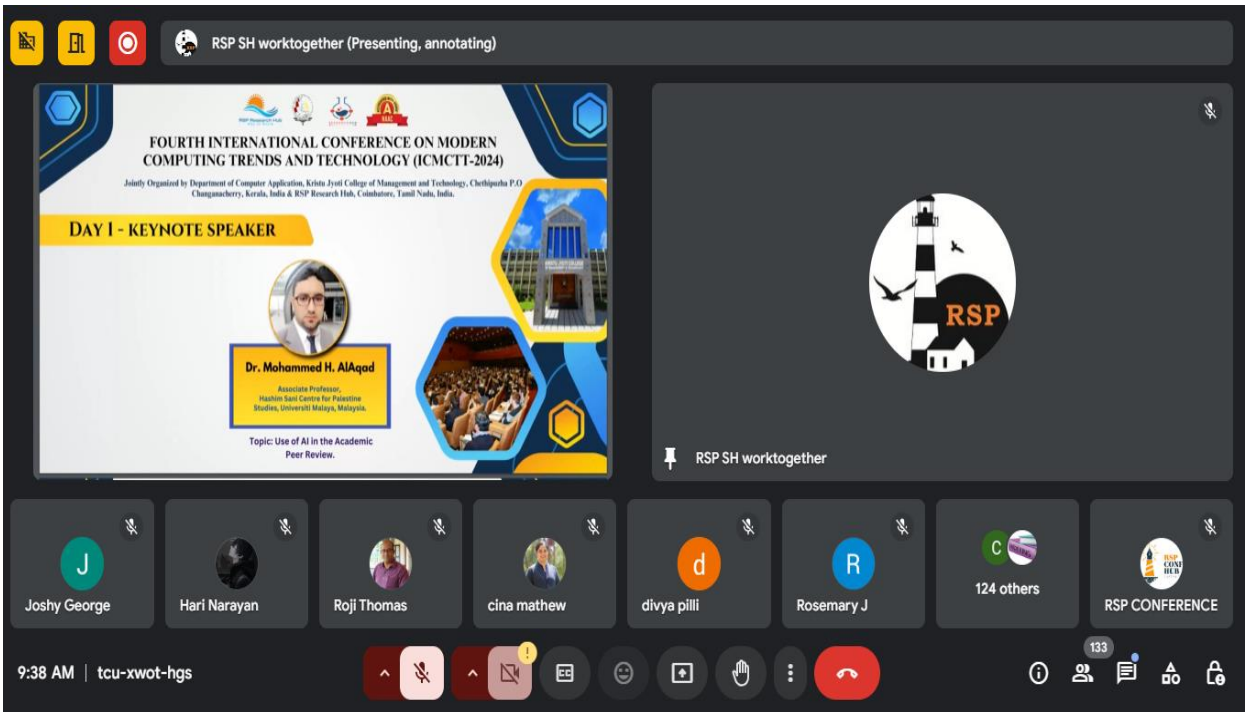
RSP SH worktogether (Presenting, annotating)
FOURTH INTERNATIONAL CONFERENCE ON MODERN COMPUTING TRENDS AND TECHNOLOGY (ICMCTT-2024)
DAY I - KEYNOTE SPEAKER
Dr. Mohammed H. AlAqad
Topic: Use of AI in the Academic Peer Review.
RSP SH worktogether
Joshy George
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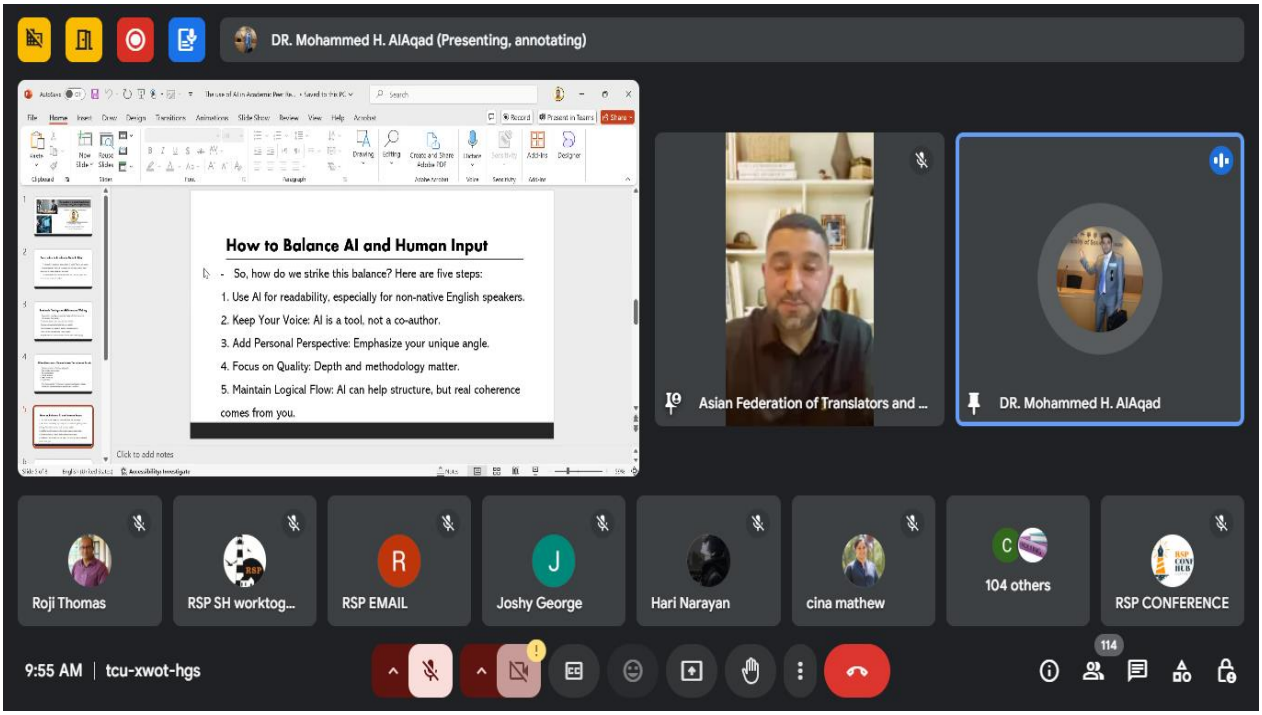
Rosemary J
124 others
RSP CONFERENCE
9:38 AM | tcu-xwot-hgs


DR. Mohammed H. AlAqad (Presenting, annotating)
How to Balance AI and Human Input
- So, how do we strike this balance? Here are five steps:
1. Use AI for readability, especially for non-native English speakers.
2. Keep Your Voice: AI is a tool, not a co-author.
3. Add Personal Perspective: Emphasize your unique angle.
4. Focus on Quality: Depth and methodology matter.
5. Maintain Logical Flow: AI can help structure, but real coherence comes from you.
Asian Federation of Translators and ...
DR. Mohammed H. AlAqad
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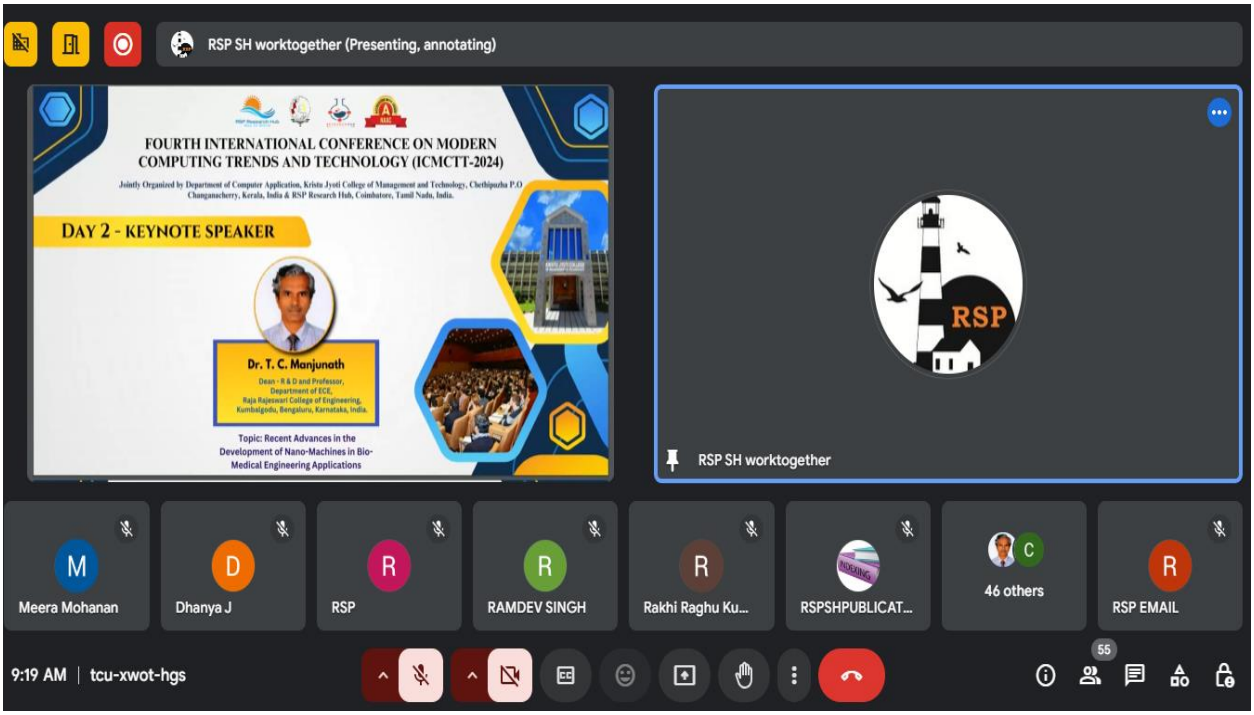
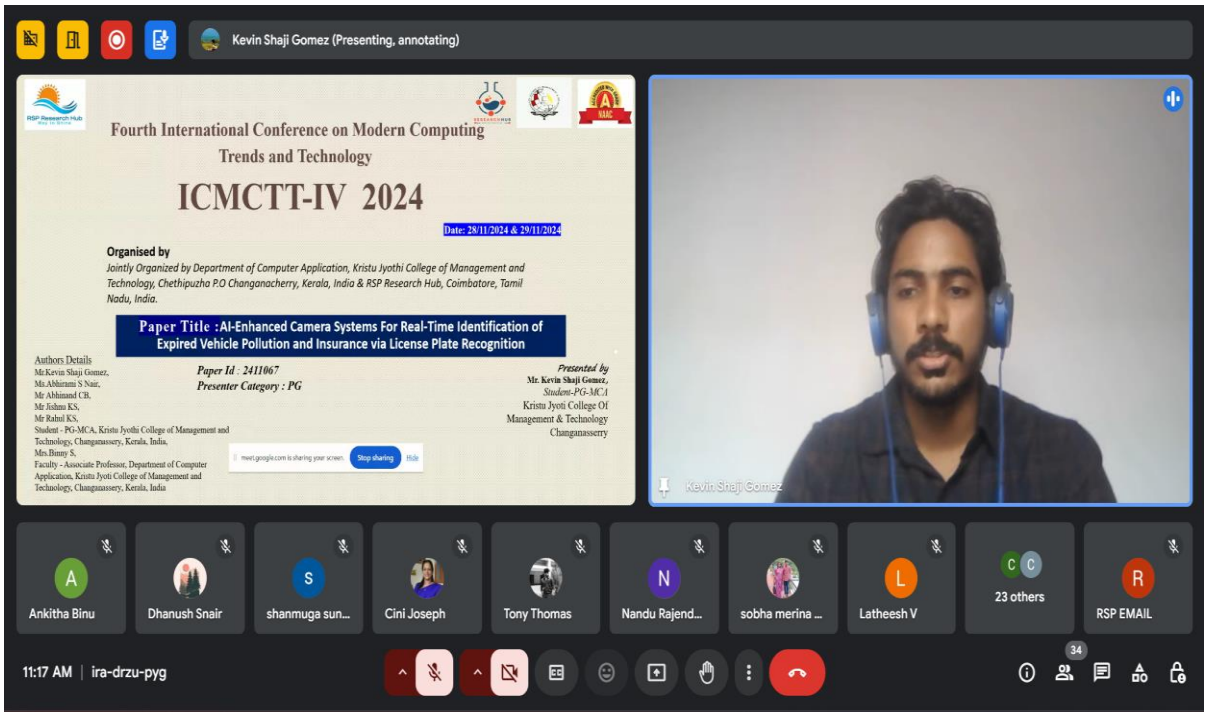
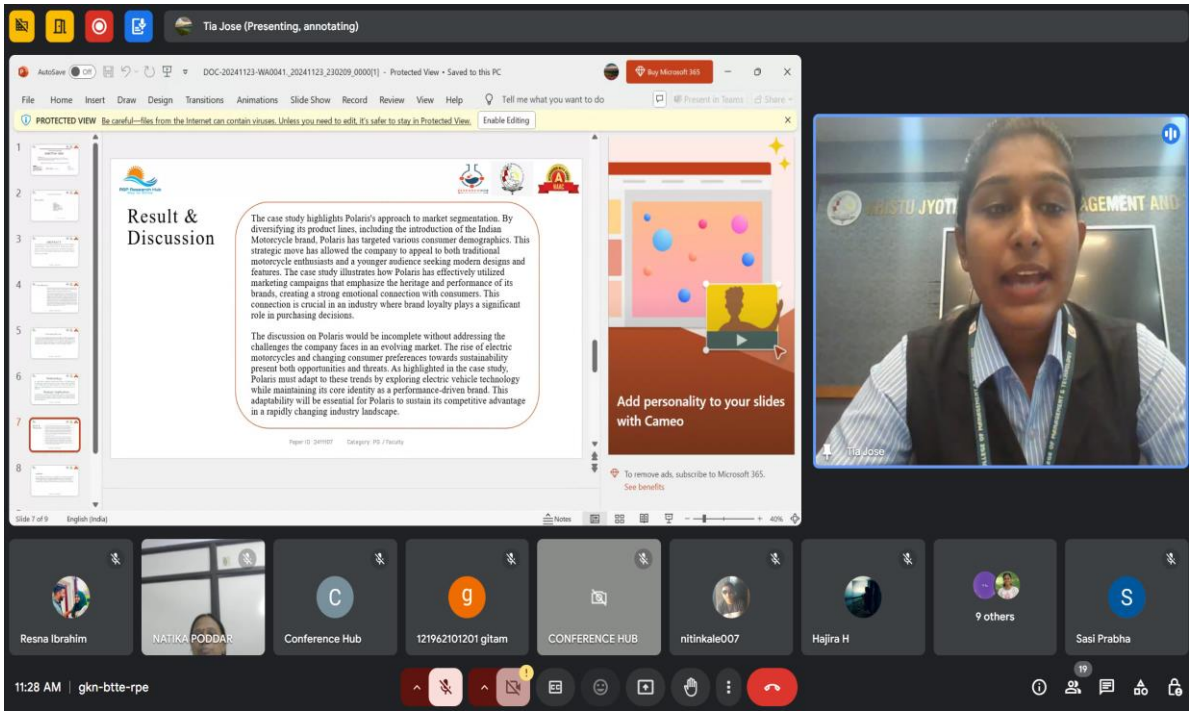
RSP EMAIL
Joshy George
Hari Narayan
cina mathew
104 others
RSP CONFERENCE
9:55 AM | tcu-xwot-hgs


RSP SH worktogether (Presenting, annotating)
FOURTH INTERNATIONAL CONFERENCE ON MODERN COMPUTING TRENDS AND TECHNOLOGY (ICMCTT-2024)
Jointly Organized by Department of Computer Application, Kristu Jyoti College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India & RSP Research Hub, Coimbatore, Tamil Nadu, India.
DAY 2 - KEYNOTE SPEAKER
Dr. T. C. Manjunath
Dean - R & D and Professor, Department of ECE, Raja Rajeswari College of Engineering, Kumbalgodu, Bengaluru, Karnataka, India.
Topic: Recent Advances in the Development of Nano-Machines in Bio-Medical Engineering Applications
RSP
RSP SH worktogether
Meera Mohanan
Dhanya J
RSP
RAMDEV SINGH
Rakhi Raghu Ku...
RSPSHPUBLICAT...
46 others
RSP EMAIL
9:19 AM | tcu-xwot-hgs


Manjunath C. (Presenting, annotating)
Evolution of Technologies
Performance
Vacuum Tube Technology
Semiconductor Technology
Nanotechnology
Radio
Radar
Television
Computers
Transistor Radio
Cell Phones
The Internet
Nano-Robots
Evolution of nano-technology took place in 4 stages
Manjunath C.
RSP SH worktoge...
Adarsh Harikumar
RSP
RSPSHPUBLICAT...
Dhanya J
Rekha Mittal Dea...
51 others
RSP EMAIL
9:36 AM | tcu-xwot-hgs

A Sample Presentation – ICMCTT 2024






Fourth International Conference on Modern Computing
Trends and Technology
ICMCTT-IV 2024
Date: 28/11/2024 & 29/11/2024
Organised by
Jointly Organized by Department of Computer Application, Kristu Jyothi College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India & RSP Research Hub, Coimbatore, Tamil Nadu, India.
Paper Title : Optimization of the Inoculum Substrate Ratio For Enhanced Hydrogen Production In Anaerobic Dark Fermentation
Paper Id : 2411050
Presenter Category : UG
Authors Details
Mr. Vijay S Nalagi (Student - UG)
Mr. Harman Singh Walia (Student - UG)
Mr. Raj Kuwar Nishad (Student - UG)
Mr. Sulthan Pasha Qureshi (Student - UG)
Mrs. Priya S (Faculty)
Mrs. Bhanu Revathi K(Faculty)
Dayananda Sagar College of Engineering, Bangalore
Presented by
Mr. Vijay S Nalagi
Mr. Harman Singh Walia
Mr. Raj Kuwar Nishad
Mr. Sulthan Pasha Qureshi
Students - UG
Dayananda Sagar College of Engineering, Bangalore
Raj kuwar Nishad
Junita Sarah
Dr. Monica Bhu...
Divya Varughese
Amanya
nitinkale007
SRIRAM.G
Sharon Anil
5 others
Teena Merlein
11:09 AM | cym-tmcm-hik


Mohan Kumar G (Presenting, annotating)
Fourth International Conference on Modern Computing
Trends and Technology
ICMCTT-IV 2024
Date: 28/11/2024 & 29/11/2024
Organised by
Jointly Organized by Department of Computer Application, Kristu Jyothi College of Management and Technology, Chethipuzha P.O Changanacherry, Kerala, India & RSP Research Hub, Coimbatore, Tamil Nadu, India.
Paper Title : Assessing the Work-Life Balance of Polytechnic Teachers in Mysore: A District-Level Study
Authors Details
Mohan Kumar G.
Lakshmana H.K.
Soumya L.M.
Sr. Scale Lecturers, Govt. Polytechnic, Karnataka
Paper Id : 2411087
Presenter Category : Faculty
Presented by
Mr. Mohan Kumar G.,
Faculty – Sr. Scale Lecturer,
Dept. of Mechanical Engg.,
Govt. Polytechnic, Nagamangala
Mohan Kumar G
Gokul S
A.M.Arun Moh...
Dr. Dattatraya ...
Lakshmana H K
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SREENATH MA...
PRATHAP A
Sangameshwa...
13 others
RSP SH workt...
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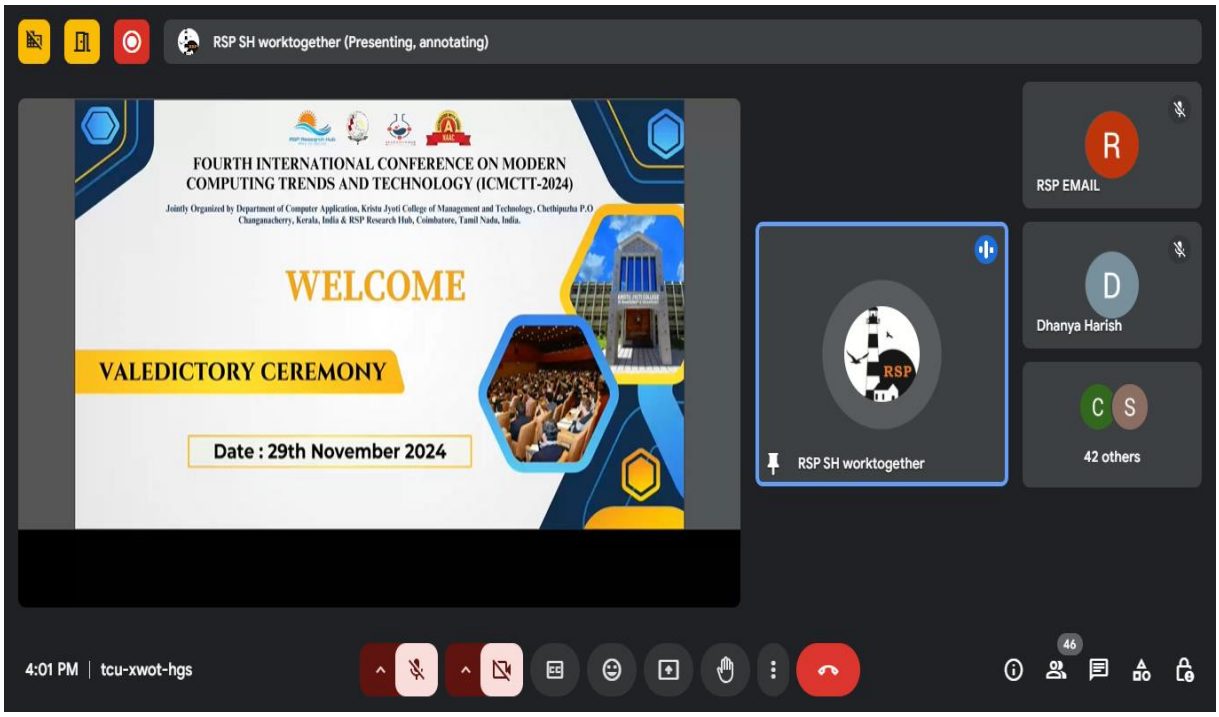
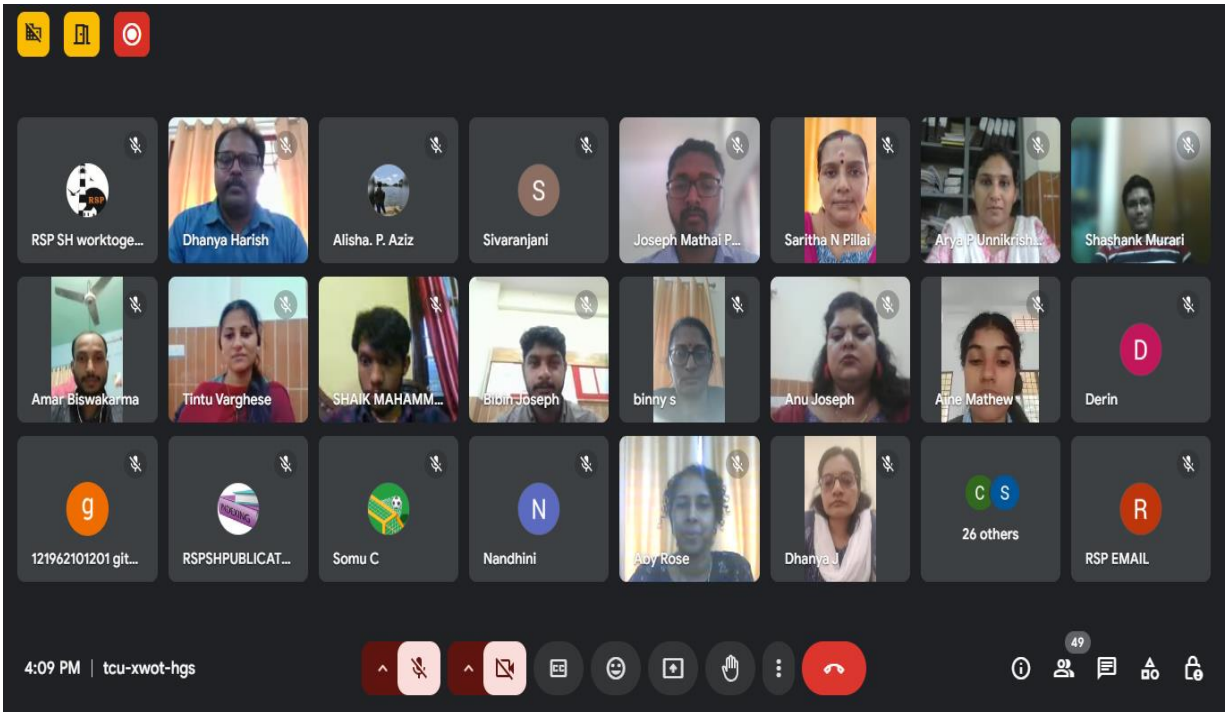
Valedictory – ICMCTT 2024





Best Presentation of ICMCTT 2024


RSP SH worktogether (Presenting, annotating)
BEST PRESENTATION
(PG)
Mr. Vairavan. M
Topic :
A review on the utilization of construction 4.0 technologies in small-scale construction supply chain management
PG - Construction Management, Coimbatore Institute of Technology, Avinashi Rd, Civil Aerodrome Post, Coimbatore, Tamil Nadu
Ms. Ashwini Baban Sankpal.
Topic :
A Comparative Review Of Dynamic Analysis Techniques For Elevated Water Tanks: Time History Method Versus Response Spectrum Method
PG - Department of Civil Engineering. , Padmabhooshan Vasantraodada Patil Institute of Technology ,Budhgaon (Sangli)
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BEST PRESENTATION
(PG - Internal)
Ms. Alisha P Aziz
Nandhini
Topic :
A Study on the Relationship Between Boredom Proneness, Self Consciousness and Life Satisfaction Among Employees
PG - Department of Management Studies, Kristu Jyoti College of Management and Technology , Chethipuzha P.O Changanacherry, Kerala, India
Ms. Anupama.A
Topic :
Music Preference and Emotional Expressivity among Emerging Adults
PG - Post Graduate Department of Psychology , Kristu Jyothi College Of Management and Technology Chethipuzha P.O Chenganassery,Kerala,India
Mr. Joseph Mathai Pathil
Topic :
The Mindful Matrix: Exploring Social Media's Influence on Mental Wellbeing
PG - Department of Computer science , Kristu Jyoti college of Management and Technology,Chethipuzha P.O Changanaserry, Kerala, India
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RSP SH worktogether (Presenting, annotating)
BEST PRESENTATION
(Research Scholar)
Ms Juhi Teresa Kujur
Topic :
Sustainable tourism in latehar: balancing adventure, culture and heritage
Research Scholar - Department of
, PG department of Geography,
CHI UNIVERSITY ,Ranchi,
Jharkhand, India
Mr. Nitin Tejmal Kale
Topic :
Virtual Net Metering: An innovative Venture In Energy Sector By Maharashtra Government
Research Scholar - School of commerce and management studies, , Sandip University Nashik Maharashtra
Mrs. Sanagavarapu Sunitha
Topic :
Analysing and Prediction of a Gold Price with ML Algorithms
Research Scholar - Department of SOCS, CMR University, Bengaluru, Karnataka
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RSP SH worktogether (Presenting, annotating)
BEST PRESENTATION
(Faculty)
Sivaranjani
Mrs. M.Vinitha
Topic :
Greenthumb Advisor: Smart Farming Solutions for Higher yields and informed Decisions
RSP EMAIL
AP - Computer science and Engineering , Rajiv Gandhi University of Knowledge Technologies , Ongole
RSP EMAIL
Dr. Kamlesh Chauhan
Topic :
Effect of Deposition Time on the structural and Wettability Properties of Zirconium Nitride (ZrN) Coatings
AP - Department of Mechanical Engineering, Charotar University of Science and Technology (CHARUSAT), Gujarat
Dr. L. Melita
Topic :
Revolutionizing Healthcare with Quantum-Based QR Codes: A Path to Secure Digital Medical IDs
ASP - Computer Science
, Yenepoya University, Bengaluru
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INDEX

Design and Implementation of Electronic Files Management System

Oloruntoyin Sefiu Taiwo

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ABSTRACT

At the heart of institutional existence is the all-important administrative activities one of which include handling of documents in such a manner as to engender smooth running of an organization/institution. In other words, by consensus, it is desirous that files should not be unduly administratively delayed or seemingly lost in transit (as is common knowledge these days), thereby making execution and implementation 'suffer' for it. It is to ameliorate, as it were the common ugly trend of file-treatment delay administratively speaking) that the interest of this research is ignited. The researcher used the direct observation and interview methods to gather data from persons who were, and still are, dissatisfied with current unpleasant administrative realities they have had to contend with. In writing the program, PHP programming language and JavaScript are used and evaluation of results returns a fascinating bug-free output which takes care of the deficiency set out to remedy. The work therefore, among others, recommends that organizations and institutions should adopt the innovative administrative design and implementation of the program in order to have more robust transactional/business ambience. Besides, government should come up with relevant policies that will encourage professionalism in administrative processes; such that there will be sanctions for defaulting institutions if reported and confirmed that unwarranted administrative delays have hampered expected implementation

Keywords: PHP Programming, Electronic File, Design, Implementation

Digital Comics (Webtoon) Of Moral Value Message Analysis

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ABSTRACT

The purpose of this study is to find out what moral messages are contained in the comic 'Mistake' by Keveeen, Matchwa using the moral message content analysis method. This study is a qualitative descriptive study. The data of this study are descriptive data in the form of written or oral data in the language community in the form of words, sentences, paragraphs and discourse in the form of narratives or dialogues that contain moral values. The data source in this study is webtoon. The primary data of this study is in the form of conversations in the webtoon entitled Mistake. Data collection was carried out using listening, reading, writing and library techniques. The collected data were analyzed using data reduction, data presentation and data verification methods. The results of the study showed that there were 3 moral messages contained in the story in the webtoon entitled Mistake, namely responsibility, politeness, and mutual respect. In addition, moral messages are also related to good and bad behavior that are guidelines for a person's life in general. Moral messages are contained in it. Based on the results of the research that have been presented previously, it can be concluded that there are 3 moral messages contained in the story in the webtoon entitled Mistake, namely responsibility, politeness, and mutual respect. In addition, moral messages are also related to good and bad behavior that are guidelines for a person's life in general. Moral messages are contained in it. In this study, of course, there are still shortcomings. Because time is the main reason, this thesis is not yet completely perfect in analyzing the moral message in the comic 'Mistake' by Keveeen, Matchwa. As for the advantages, this thesis analyzes the moral message in the comic 'Mistake' by Keveee, Matchwa certainly understands what moral values are, and what kind of moral values exist in society and of course there are. in this comic 'Mistake'.

Keywords: Webtoon; Moral Values; Digital Comic

ICMCTTAP003

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

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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.

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

Noor Ali Saeejil[1], Hussain A. Younis[2,3], Israa M. Hayder[4], Muthmainnah[5]

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ABSTRACT

Abstract. This research focuses on message classification, specifically dis-tinguishing between legitimate and spam messages. The paper emphasizes the importance of preprocessing textual data using vectorizers, introducing CountVectorizer 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 imple-mentation, providing machine learning and natural language processing ca-pabilities. Various algorithms, including decision trees, random forests, sup-port 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 Commis-sion. The research objectives include training models with selected algo-rithms 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 charac-teristics 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, Neu-ral.

ICMCTTAP005

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

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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

ICMCTTAP006

Integration of Cloud Computing With Artificial Intelligence in Education Process

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

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[7]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

ICMCTTAP007

Breaking the Code of Publishing in Scopus-Indexed Journals: An Autoethnography

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ABSTRACT

It is a dream for neophyte researchers to publish in high-end or top-ranked journals, like those indexed in Scopus. However, achieving such feat is no easy task and demands a lot of learning and probably patience. The purpose of this paper is to describe the experience of a researcher in his journey towards Scopus publication, focusing on his struggles and essential lessons. Applying Autoethnography, the paper provides a glimpse of the situation of other neophyte researchers who are non-native English speakers similar to the author. The presentation is divided into two. First is on the struggles toward publication, such as losing confidence, excitement, and ignorance of standards, and Filipino English as a liability. Second is on the essential lessons gained, such as article-journal fit, journal quality and standards, editing help, and focus and determination. Indeed, publishing in high-end journals like Scopus is challenging, but there is always a way, particularly learning from past mistakes and maximizing the lessons learned.

Keywords: Publication, Scopus, English, Autoethnography, Philippines

ICMCTTAP008

Teacher Development on the Virtual Platform

Alesa Durgaryan

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ABSTRACT

The educational sector is considered one of the important sectors that educates and educates not only students, but also puts forward many demands and problems in the field of certification and training of teachers. Educational changes, in their turn, envisage the revision of educational programs and the introduction of various media tools, which allow current conditions and education to be carried out not only on existing, but also on remote platforms. To implement education on these platforms, teachers participate and are trained in seminars, webinars and courses of various educational institutions. As a result, they can easily transition from one platform to another and integrate into a new class format. They are able to participate in these trainings and a number of educational programs through an online platform, which is wider and more diverse than in the existing case. The online platform is quickly stabilizing its position in the field of educational training, already recording its success and effectiveness. New technologies have broadened the borders of professional development and benefitting the influence of virtual platform.

Key words: virtual platform, training, professional development, teacher training.

ICMCTTAP009

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

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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.

ICMCTTAP010

Early Detection of Osteoporosis Using Biomarkers and Deep Learning Techniques

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ABSTRACT

Osteoporosis is a progressive skeletal disorder characterized by reduced bone mass and deterioration of bone tissue, leading to an increased risk of fractures. Early detection is crucial for preventing severe complications, but traditional diagnostic methods often fail to detect the disease at its initial stages. This study presents a novel approach for the early detection of osteoporosis using a combination of imaging biomarkers from knee X-ray images and clinical biomarkers, integrated with advanced deep learning techniques. A double-stacked convolutional neural network (CNN) architecture is proposed, incorporating attention mechanisms within the CNN to enhance feature extraction and classification accuracy. The model is optimized using the Adam optimizer and employs MISH and SWISH activation functions for improved convergence and performance. The proposed system classifies osteoporosis into various stages based on knee images and biomarkers, providing a comprehensive and accurate diagnosis. Additionally, the model is deployed as a web application, enabling real-time classification of osteoporosis stages and assisting clinicians in early diagnosis and intervention. This approach aims to improve the accuracy and efficiency of osteoporosis detection, contributing to better patient outcomes.

Keywords: CNN, Osteoporosis, Deep learning, Biomarkers

ICMCTTAP011

Natural Language Translation Being Implemented in Real-Time Chat Application

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ABSTRACT

Recent advancements in neural network-based approaches have significantly improved the field of machine translation. This work presents a sequence-to-sequence model that incorporates Long ShortTerm Memory (LSTM) units along with an attention mechanism for translating a given source language into a target language. The model consists of an encoder and a decoder, both implemented with LSTMs. The encoder processes the input sentence by transforming each word into dense embeddings and sequentially updating a hidden state, capturing the context of the sentence. The decoder utilizes an attention mechanism, specifically Bahdanau attention, to dynamically focus on relevant parts of the input sequence, allowing for more contextually aware translations .To showcase the practical application of this model, it is implemented in a chat application designed for business platforms. The chat application leverages the model to facilitate real-time translation between languages, allowing seamless communication between business partners and clients who speak different languages. This integration not only enhances the user experience by providing accurate translations but also bridges language barriers, making it easier for businesses to expand their reach in global markets. By utilizing the strengths of LSTMs and attention mechanisms, the proposed model demonstrates improved performance and contextual understanding in machine translation tasks, providing a robust solution for multilingual business communications.

Keywords: LSTM Architecture, Attention Mechanism, Real-World Application

ICMCTTAP012

Virtual Net Metering: An Innovative Venture in Energy Sector by Maharashtra Government

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ABSTRACT

Virtual Net Metering (VNM) is an innovative policy initiative introduced by the Maharashtra government through the Maharashtra Electricity Regulatory Commission (MERC) to promote renewable energy adoption and enable consumers to benefit from offsite solar energy generation. This study provides a comprehensive analysis of Maharashtra's VNM policy, its operational framework, potential benefits, challenges, and implications for residential, commercial, and public entities. VNM allows multiple energy users to share the benefits of a single renewable energy generation system, particularly beneficial for entities lacking the capability or space to install their own renewable energy resources. Under VNM, energy generated from a shared or offsite solar installation is allocated to multiple participants based on their energy consumption, and corresponding credits are applied to their electricity bills. The Maharashtra government has established a framework for VNM implementation, outlining key components such as registration, energy trading, tariff structure, and grid integration. VNM offers several advantages, including increased solar adoption, improved grid stability, reduced carbon footprint, and economic benefits. However, challenges exist in terms of technical infrastructure, regulatory constraints, and consumer awareness. Case studies from global examples provide valuable insights into the practical implementation and outcomes of VNM programs. Recommendations to overcome challenges and ensure successful VNM adoption in Maharashtra include public awareness campaigns, stakeholder collaboration, regulatory reforms, incentive programs, and pilot projects. VNM represents a significant advancement in Maharashtra's pursuit of a cleaner and more inclusive energy future, empowering residents to manage their energy consumption and costs while promoting sustainable energy practices. It also assesses how VNM promotes energy democratization and improves grid stability through decentralized energy systems.

Keywords- Consumer Empowerment, Decentralized Energy Systems, Electricity Distribution, Maharashtra Government, Renewable Energy Policy, Solar Energy, Virtual Net Metering (VNM)

ICMCTTAP013

Prediction and Analysis of Flood Forecast using Machine Learning Models

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ABSTRACT

Flood forecasting is a vital tool for reducing the devastating impacts of floods on human life, property, and the environment. Its primary importance lies in providing early warnings that help communities prepare and respond effectively to impending flood events. In order to accurately forecast floods, our research provides a flood prediction system that analyses hydrological and meteorological data using four different classification models such as AdaBoost with Support Vector Machine (SVM), AdaBoost with Naive Bayes (NB), J48 Decision Tree, and a hybrid approach that combines an Improved Multi-Layer Perceptron (IMLP) and K-Means Clustering(K-Means).By leveraging a comprehensive dataset that includes crucial variables such as rainfall measurements, river water levels, and soil moisture content, the proposed method tries to uncover trends linked with flood occurrences. The model's efficacy in forecasting flood events is then assessed by utilizing a range of performance criteria such as accuracy, precision, recall, and F1 score. According to the results, the hybrid algorithm (K-Means with IMLP) outperformed the other models in terms of prediction accuracy. In the end, our research aims to enhance risk management and disaster preparedness by offering a dependable flood forecasting tool, hence reducing the detrimental effects of floods on infrastructure and communities.

Keywords: Flood Prediction, AdaBoost with Support Vector Machine (SVM), AdaBoost with Naive Bayes (NB), J48 Decision Tree, Improved Multi-Layer Perceptron (iMLP)

ICMCTTAP014

Analysis of Longitudinal Fin Using Homotopy Perturbation Method

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ABSTRACT

This works is aimed at studying the effect of environmental temperature such as radiation sink temperature, and heat generation number on the temperature distribution of Longitudinal Fin . The Homotopy Perturbation Method (HPM) being one of the efficient numerical methods for highly non linear equations, the local temperature field and efficiencies are obtained using HPM in which Newton-Rapson method is used to estimate the fin temperature for insulated boundary conditions. It is found that the present HPM results are good agreement with the results available in literature.

Keywords: **Sink Temperature; Heat Generation; Variable Thermal Conductivity**

ICMCTTAP015

Advanced Kinetic Activity and Physiotherapy Monitoring System using CV and Deep Learning

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ABSTRACT

The Advanced Kinetic Activity and Physiotherapy Monitoring System offers a cutting-edge approach to exercise and physiotherapy tracking by utilizing Computer Vision (CV) and Deep Learning. Manual observation is frequently used in traditional physiotherapy, which can be subjective and prone to human mistake. In order to increase assessment accuracy, this system provides real-time monitoring, automated tracking of physical activity, concentrating on important metrics including posture, joint angles, and gait patterns. Patients can complete exercises correctly without continual monitoring thanks to the system's ability to analyze live video feeds and Provide feedback on movement change at the end . By integrating the ExerciseDB API, the system can anticipate particular workouts and provide comprehensive details about them in response to user input, enabling tailored instruction. User movements are evaluated during the "Predict Exercise" phase, and useful information is offered to enable therapeutic modifications and promote appropriate form. According to preliminary findings, this strategy greatly improves patient outcomes by enhancing the effectiveness and accessibility of physiotherapy and rehabilitation through remote monitoring and customized recommendations.

Keywords: Deep Learning, CV, ExerciseDB API, Real-time Monitoring

ICMCTTAP016

The Study of Anomaly Detection in Patterns from Remotely Sensed Images

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ABSTRACT

Anomaly detection in remotely sensed images is a critical task with diverse applications, ranging from environmental monitoring to smart agriculture. Various methodologies have been developed to enhance the detection of anomalies, which are deviations from expected patterns in image data. These methods leverage advanced computational techniques and machine learning models to improve accuracy and efficiency. Anomaly detection in remotely sensed images can be employed using different methods such as heterogeneous and edge computing, convolutional neural Networks, multi-dimensional feature space, unified anomaly detection, unsupervised learning for burnt area detection, etc. This paper discussed different methods and cutting-edge technologies for anomaly detection. While all these methods show significant advancements, challenges, limitations remain in terms of computational resource requirements and the need for real-time processing capabilities. Future research may focus on optimizing these models for broader applications and improving their adaptability to new data sources.

Keywords: Remotely Sensed Images, Hyperspectral Images, Anomaly Detection, Auto-Encoder, Convolutional Neural Network.

Smart Parking System with Computer Vision

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ABSTRACT

Growing urban populations have caused an increase in the demand for effective by-the-hour accommodating facilities. Most of the existing parking management systems are weak at managing the ever-changing needs of today's urban centres. The development of an innovative smart parking system is discussed in this paper which employs computer vision technology to improve both parking efficiency and user accessibility. The described system combines real-time image processing with the techniques of the neural network to find and control the occupancy of parking spaces. The system collects information about parking space usage, thanks to efficient placement of the cameras in the parking lots, and assists drivers in finding the available parking spaces. The smart parking system was able to achieve better occupancy levels and reduced time in looking for free bays. In addition, the smart parking system has some elements of data analytics, which help in improving the efficiency of utilizing parking space and controlling the supply in the areas with heavy traffic. This technology is a notable improvement in the smart city architecture as one of the ways extends the provision of a practical method of solving the urban parking problem.

Keywords: Deep Learning, Computer Vision, Convolutional Neural Networks, Vehicle Detection, Mask RCNN, Vehicle-Damage Detection, Object Detection.

ICMCTTAP018

Enhancing the Performance of Deep Learning Classifiers in Leukemia Detection

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ABSTRACT

Leukemia, a cancer marked by the aberrant proliferation of immature white blood cells in bone marrow and blood, frequently manifests at a ratio of 1000:1 healthy cells, making diagnosis more difficult. Traditional diagnostic techniques like blood tests and bone marrow examinations mainly rely on manual cell counting with a hemocytometer, which is laborious and prone to human error. This study proposes a deep learning-based framework aimed at enhancing the speed, accuracy, and reliability of leukemia detection by leveraging advanced computational techniques. The proposed model integrates sophisticated preprocessing methods like data augmentation to stabilize model training and mitigate overfitting, thus improving the robustness and consistency of the model. Convolutional Neural Networks, with their ability to capture intricate spatial hierarchies and retain essential features through pooling layers, make them ideal for processing large, complex medical datasets. The U-Net model, for strong performance in medical image segmentation, is employed to accurately isolate abnormal white blood cells, utilizing its unique contracting and expanding pathways to effectively capture detailed cell features, which enhances overall diagnostic accuracy. Further, classification within this model is optimized using CatBoost, a gradient-boosting algorithm that excels in handling noisy data and reducing overfitting risks. CatBoost's adaptability and precision make it especially suited to the complex, high-dimensional data typical in medical imaging. This integrated approach not only aims to automate and expedite the leukemia diagnostic process but also to advance current diagnostic standards, providing clinicians with a powerful tool that promises to improve patient outcomes by facilitating faster, more accurate diagnoses.

Keywords: Catboost Classification; Deep Learning; Leukemia; Medical Imaging; U-Net.

Smart Meeting Room Access Control and Management via IoT

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ABSTRACT

In Most Meeting Room Scheduling or Management System, the Availability of Meeting Rooms are Mainly Based on Pre-Determined Schedules. However, since the Meeting Duration is not always exact as it is Scheduled, There Are Some Situations That a Meeting Room Is Underutilized. Therefore, In This Paper, We Present A Smart Meeting Room Scheduling And Management System Which Detect Occupancy Status Of Meeting Rooms In Real Time And Integrate This Information Into The Scheduling Application To Support Meetings And Increase Room Utilization. Occupancy Data Is Sent To A Central Application Server By UDF Over IP Protocols. On This Server, A Web Application Is Developed And Hosted To Not Only Allow People Book Rooms For Their Meetings, But Also Check The Utilization Of These Rooms Based On Predefined Policies. The System Also Supports Meetings by Providing Real-Time Availability of Meeting Rooms to Users.

Keywords: Meeting Scheduling; Room Management; Real-Time Occupancy Detection; Utilization Control; Ad-Hoc Meetings;

ICMCTTAP020

Enhancing the Performance of Machine Learning Classifier in Leukemia Detection

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ABSTRACT

Leukemia is a type of cancer affecting blood and bone marrow, where early and accurate diagnosis plays a crucial role in treatment outcomes. Machine learning has emerged as an effective tool in automating the classification of leukemia cells by analyzing complex medical datasets. The cancer of the blood and bone marrow, requires early and accurate diagnosis for effective treatment. Machine learning techniques offer significant potential in automating and improving leukemia detection by classifying cancerous and non-cancerous cells from medical data. In this study, we present a novel approach to leukemia classification using the Linear Discriminant Support Vector Machine (LDSVM) method. LDSVM is a hybrid technique combining Linear Discriminant Analysis (LDA) and Support Vector Machine (SVM) for enhanced feature reduction and classification accuracy. By leveraging the strengths of LDA in dimensionality reduction and SVM's robust classification capabilities, this approach optimizes the accuracy of leukemia detection while reducing computational complexity. The model was trained and evaluated using real-world leukemia datasets, showing promising results in terms of precision, sensitivity, and overall classification performance. The proposed LDSVM method provides an efficient and reliable tool for aiding oncologists in the diagnosis and classification of leukemia, ultimately contributing to improved patient outcomes.

Keywords: Leukemia, Machine Learning, LDSVM, Linear Discriminant Analysis, Support Vector Machine, Cancer Classification, Dimensionality Reduction.

AI-Powered Gesture-Controlled Interactive System for Real-Time Mathematical Problem Solving and Visualization

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ABSTRACT

In this paper, we are working on an AI based gesture-controlled system which responses to the hand motion of user and solves computer generated mathematical problems without any need of mouse, keyboard or even getting off from their sit. Dubbed MathVision, the system uses contemporary machine learning techniques like OpenCV for detecting gestures and Google Gemini LLM technology for interpreting math equations—atop a relatively straightforward interface. A webcam or other camera captures hand movements on gestural drawings equations that are then converted into a usable format which can be interactively scrolled, deleted and confirmed by making specific gestures with the hands. A trained model to detect finger gestures when writing math expressions, with custom mathematical layers. MathVision serves as an educational software product, providing educational interactivity to a general process of problem-solving where students receive problems and can either solve mathematical exercises by hand or type their solutions. The purpose of this technology is to combine classical problem-solving approaches with the power new computational tools, so that math could be more interactive and effortless. MathVision converts visual manipulations into instant mathematical answers, and offers an interactive way to understand difficult math's topics in a highly interactive manner. Combining gesture recognition with AI-based problem solving would change the future of our education; revolutionizing instruction and transmission of mathematical concepts across all levels.

Keywords: Generative Artificial Intelligence, Gesture Recognition, Human Computer Interaction, Computer Vision.

Certificate Validation Using Blockchain

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ABSTRACT

As education becomes more diversified, decentralized and democratized, we still need to maintain reputation, trust in certification and proof of learning. Nowadays everyone has to show his/her Document and Certificate to any other person for some purpose/job. After seeing the document, the 3rd person cannot validate the originality of the certificate. The same thing is applied for a land registry, PAN card, and Aadhar card verification. The increased focus on relevance and employability may also push us in this direction, as we also need more transparency. We can solve this problem or get trust by using blockchain technology. The digital currency Bitcoin is probably the best known application of blockchain and is even better known than the Blockchain technology on which it is based[1]. The blockchain is a chain of blocks and blocks are immutable in a distributed environment, in which storage devices are not all connected to a common processor. It is a database of records/public ledger of all transactions/digital events that have been performed and information is shared within participating parties. Each entry in the system is verified by common consent of the participants in the system. Once information is entered in the blockchain it cannot be erased. It could provide a system that is transparent and secure. Blocks (Ordered Records) are added to the blockchain with timestamp and a link to a previous block. Verifying a diploma/certificate today takes a good amount of time and requires human resources or human resources to request confirmation of details from universities.

Keywords: Decentralization; Blockchain; Certificate Validation; Transparency; Digital Currency; Security.

ICMCTTAP023

Impact of Agricultural Inputa on Paddy Cultivators of Hassan

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ABSTRACT

Regarding the impact of agricultural inputs on productivity of farmers in Hassan district the sample area taken was four taluk. Holenarsipura Arakalgudu Narayana pura and Alluru. 50 farmers growing Paddy where chosen for the study. The research gap suggested that there was a huge shortage of procurement of healthy seeds, no new farm machinery, lack of agricultural finance, irrigational facilities was not harnessed effectively, though river Hemavathi flows through these talukas there was water shortage , fertilizers shortage, soil incompatibility and old stock pesticides were available. These were the core requisites which was not readily available to the cash strapped farmers. Lack of capital can be the main reason for low production. Even the labour was seasonal and most of the times never returned post harvest as they found employment elsewhere. The research methodology used was both primary and secondary data. Analysis for interpretation and the computation of the data collected by interview method from the farmers where compiled and analyzed by means of the percentage method and regression analysis. The findings showed that the unfavorable procurement of inputs which was basically needed to increase and usher in a bountiful production was woefully inadequate. conclusion portrayed that still 70% of the farmers were using old traditional methods for cultivation of Paddy the farmer sampled were from middle sized farms and had agricultural farms ranging to five acres meaning 2 hectare. Their major problems were regarding difficulties in mechanization of their forms timely shortage of credit facilities and seeds infestation huge competition to sell their produce in the apmcs card made them a higher prices made them value of the Paddy became less while they were earning less because the cost was less their revenue was also less.

Keywords—fetilizers, agricultural productivity, pesticides ,Paddy, traditional methods.

The Smart Mirror

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ABSTRACT

The Project illustrates the design and development of a clever mirror that shows an exquisite interface for glimpsing data. Intelligent mirror, which continues the workings today, and will take its place in technology forthcoming, provides both mirror and computer-served information amenities to its users. "Smart Mirror System Development" includes weather, time, date, Google Assistant, and Home Automation. It utilizes Raspberry pi-3. Through its microphone, the smart mirror enables voice commands to operate certain devices. The smart mirror displays applications so that you can check the weather, local news, and so on while you're getting ready in the morning. This smart mirror would do smart thinking for the user. This smart mirror aims to reduce and possibly eliminate the need for the user to make time in their daily morning or night routines to check their pc, tablet, or smartphone for the users. The makings of this smart mirror include a microcontroller called Raspberry Pi3 which acts as a brain of the interactive system. The microcontroller would be powdered using Python scripts for mirror software as well as a personal assistant. After installing the software, the function can be accessed via a command line once it is set up. A 10-inch Display would be placed below an acrylic two-way mirror sheet and the model would be placed in an aluminium frame. We will build a separate personal assistant that will be able to recognize and perform speech-to-text operations. The personal assistant is named Jarvis. The project is extensive and AI plays a crucial role in today's world.

Keywords: Voice Assistant, Bluetooth, Speaker, IoT, Raspberry pi-3, LCD, Home Automation.

ICMCTTAP025

Enhancing Accuracy of Precision Farming with Agrarian Direction System: A Comparative Study of Decision Tree and Spatial Temporal Model

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ABSTRACT

The goal of this study is to enhance the accuracy of precision farming for an intelligent Agrarian direction system using Decision tree algorithm in comparison with a Spatial Temporal Model. Decision Tree Algorithm N=50 and Spatial Temporal Model N= 50 are applied to the dataset, which includes a total of 2200 samples composed of 2200 rows and 8 columns for improving the accuracy of precision farming for an intelligent Agrarian direction system. The total sample size is calculated using the ClinCalc tool with G-Power 0.8 and $\alpha = 0.05$. Based on the accuracy, the performance of precision farming for an intelligent Agrarian direction system is evaluated based on accuracy. The mean accuracy of the Decision tree algorithm (98.58%) is high compared to the Spatial Temporal Model (96.06%). This indicates that there is a statistically significant difference between the two algorithms with $p=0.000$ (Independent sample T-test $p<0.05$). In comparison to the Spatial Temporal Model (96.06%), the mean accuracy of the Decision tree algorithm (98.58%) is high.

Keywords—Agrarian Direction System (ADS), Decision Tree Algorithm, Spatial Temporal Model, Precision Farming, Rainfall, Humidity, Temperature.

ICMCTTAP026

SurveilGuard: Intelligent Surveillance - Detecting, Reporting, and Alerting

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ABSTRACT

As security challenges evolve, traditional surveillance systems often fall short in effectively identifying and responding to real-time threats. This paper introduces SurveilGuard, a novel, AI-powered surveillance framework designed to autonomously detect, report, and respond to abnormal activities such as fighting, smoking, hugging, and other predefined behaviors in real time. Leveraging motion-triggered camera activation via the ESP32-CAM and powerful anomaly detection models like YOLO for activity recognition, SurveilGuard offers a seamless integration of video capture, behavior analysis, and incident reporting. When abnormal activities are detected, the system sends real-time alerts using Twilio and automatically generates detailed reports enriched with video evidence and contextual data using CLIP for image-text matching. These reports are securely stored and easily accessible via a web interface for authorized personnel, enhancing situational awareness and operational response. Additionally, Power BI is employed for data visualization, allowing for comprehensive reporting and interactive dashboards. SurveilGuard represents a significant advancement in automated surveillance, offering a scalable solution for real-time security monitoring with minimal false alarms, empowering security teams to respond quickly and effectively.

Keywords: Intelligent surveillance, anomaly detection, real-time reporting, automated security, video analytics, YOLO, Twilio, CLIP, Power BI.

ICMCTTAP027

Pavement Materials for Adapting Climate Change

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ABSTRACT

Focusing on pavement material causing lesser water infiltration. Temperature and moisture fluctuations impact pavement performance, often causing cracking, rutting and other forms of degradation. Consequently, research has advanced materials capable of withstanding climatic stresses. Climate-responsive pavement designs incorporate recycling techniques and regional-specific mix designs to counter weather-related damage and reduce maintenance expenses. Porous pavements have become prominent as a sustainable solution to diverse climatic challenges. Engineered to allow water infiltration, they manage storm water, reduce surface runoff and mitigate urban flooding. The interconnected voids within these materials facilitate water percolation, making them particularly effective in areas with high rainfall or frequent storms. By reducing surface water accumulation, porous pavements enhance road safety and lower hydroplaning risks. In colder climates, their permeable structure minimizes freeze-thaw damage by allowing water to drain, thus reducing ice formation and cracking. The integration of polymers and fibers into porous pavements further enhance their strength and longevity. Additionally, porous pavements contribute to urban heat reduction through evaporative cooling, helping to address the urban heat island effect. This type of pavement supports groundwater recharge, reduces maintenance needs and enhances pavement lifespan. Findings emphasize the benefits of porous pavements as adaptable, eco-friendly options for urban infrastructure. They promote climate resilience, align with sustainable water management practices and reduce environmental impacts by lowering repair frequency and resource consumption. Overall, the study underscores the role of porous pavements in building climate-resilient, sustainable infrastructure that prioritizes environmental conservation and urban safety.

Keywords—Pavement materials, Porous pavement, Groundwater recharge, Sustainable water management.

ICMCTTAP028

Psychological Inflexibility and Fear of Negative Evaluation among Emerging Adults

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ABSTRACT

Psychological inflexibility is purported to be determinant of psychological distress and behavioral ineffectiveness. Fear of negative evaluation is a psychological construct that involves apprehension regarding how others perceive, potential distress over negative judgments, and an anticipatory expectation of unfavorable evaluations. The present study aimed to determine the relationship between psychological inflexibility and fear of negative evaluation among emerging adults. The research instruments used were AAQ-II to asses psychological inflexibility and brief FNE to asses fear of negative evaluation. The sample consisted of 102 emerging adults. The samples were collected using convenience sampling. The data were analysed using SPSS Version 27. The data was not normally distributed therefore the statistical techniques used were Spearman's Rank correlation test to find the result. The result of the study showed that there is a significant positive relationship between psychological inflexibility and fear of negative evaluation among emerging adults.

Keywords: Emerging Adults; Fear of Negative Evaluation; Negative Judgments; Psychological Distress; Psychological Inflexibility

ICMCTTAP029

Automated Transport Management System: Route Optimization and Attendance Tracking For Institutions

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ABSTRACT

Educational institutions face significant challenges in managing student transportation, such as inefficient route planning, manual attendance tracking, and the lack of real-time communication. These issues contribute to delays, operational inefficiencies, and safety concerns, leaving students, parents, and administrators with limited access to critical information about transportation logistics. Existing literature highlights advancements in transportation management through IoT, RFID, GPS, and AI, revealing both the potential of these technologies and their limitations in addressing hardware dependencies, network constraints, and manual interventions. Notable research includes IoT-based systems for bus tracking and attendance, Wi-Fi-enabled attendance solutions, and multiagent routing optimization algorithms, which underscore the effectiveness of real-time tracking and automation but reveal gaps in scalability, cost-effectiveness, and hardware reliability. To bridge these gaps, this project introduces the Automated Transport Management System (ATMS), a comprehensive platform designed to enhance efficiency, safety, and communication in student transportation. ATMS integrates GPS for real-time route visualization, barcode-based automated attendance logging, and proactive notifications accessible through a user-friendly web interface. This approach minimizes manual errors, reduces wait times, and ensures reliable service even in areas with variable connectivity, providing an efficient and flexible solution for educational institutions. By continuously evolving its features, ATMS aims to establish a new standard in transportation management, promoting student safety and operational effectiveness.

Keywords: Automated Transport Management System, Student Transportation, Attendance Tracking, Real-Time Tracking, GPS Technology, IoT, Web-Based Solution

ICMCTTAP030

A Review on the Utilization of Construction 4.0 Technologies in Small-Scale Construction Supply Chain Management

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ABSTRACT

Small-scale construction firms face persistent challenges in supply chain management due to limited digitalization and a continued reliance on traditional methods. These challenges lead to inefficiencies, resulting in significant waste and reduced productivity, and place small-scale firms at a disadvantage in a competitive market. This review explores the potential for utilizing Construction 4.0 technologies to enhance productivity and streamline supply chain management in small-scale construction. Through a comprehensive literature survey, a lack of awareness and adoption of digital tools was identified, revealing a key barrier to optimizing supply chain processes and achieving cost-effectiveness for these businesses. To gain further insight into current practices, a questionnaire survey will be conducted with engineers and suppliers involved in the small-scale construction supply chain, aiming to assess their specific needs and challenges. Insights from this survey will inform the design of a web-based application tailored to act as a digital tool for supply chain management, with a focus on improving productivity by addressing key factors impacting small-scale supply chains. This proposed tool will offer a user-friendly platform for streamlining supply chain operations, ultimately supporting small-scale firms in adapting to industry demands and enhancing their competitive positioning through digital transformation.

Keywords—Construction 4.0, Digitalization, Supply Chain Management, Productivity Enhancement, Small-Scale Construction

AI Job Gate

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ABSTRACT

In this competitive job market, recruiters receive thousands of applications, many from poorly qualified candidates. This somehow increases the amount of time and resources consumed in screening and filtering candidates. Since job seekers apply for multiple jobs simultaneously without knowing their qualifications, it leads to frustration and wasted effort. The recruitment process can be made easier by addressing these two issues through an AI-based assessment chatbot integrated with a job application portal. Recruiters can ensure that only prospective candidates who qualify for a particular position apply by automating the assessment of candidates through domain-specific tests designed to measure their competencies at varying levels of difficulty. The credibility of the assessment is further enhanced by the chatbot introducing a timer along with randomly generated questions. Test data are recorded and presented in personalized dashboards, which allow recruiters to assess candidate performance effectively while permitting candidates to evaluate their performance. This approach saves much more than recruiting time; it also enhances the experience of a candidate by providing quick feedback along with pertinent information for development, thus making the hiring process smoother for all parties involved.

Keywords: AI-Based Assessment Chatbot, Domain-Specific Tests, **Personalized Dashboards, Feedback**

ICMCTTAP032

Predicting Used Car Prices Using Machine Learning: A Comparative Analysis of Regression and Ensemble Models

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ABSTRACT

The globe is expanding daily, and with it are everyone's expectations. Purchasing an automobile is one of the demands out of all of them. However, not everyone can afford a new car, so they will purchase a used one. However, newcomers are often unaware of the market value of their ideal vehicle for an old car. That's why we require a platform that assists new users in estimating car prices. We propose that platform in this work, which is built with machine learning technology. Let's attempt to create a statistical model that can forecast the cost of a used car using supervised machine learning techniques including linear regression, KNN, Random Forest, XG boost, and decision trees. We will be assisted in this endeavor by prior customer data and a certain set of characteristics. In order to choose the best model, we will also compare the forecast accuracy of different models.For buyers, this system helps assess whether the asking price of a car is fair based on market trends. Sellers can use the predictions to set competitive prices for their vehicles, ensuring better market positioning. This predictive capability ultimately enhances transparency, allowing for more informed and confident decision-making in the automotive industry. With continuous advancements in machine learning, the accuracy and efficiency of car price predictions will continue to improve, offering even greater market insights.

Keywords: Analysis, Research, Machine Learning, Random Forest, XG boost, Decision Tree, Linear Regression

ICMCTTAP033

Psychological Capital and Proactive Attitude among Emerging Adults

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ABSTRACT

A person's positive psychological condition of growth, that is characterized by high levels of the four components of HERO feelings- Hope, Efficacy, Resilience and Optimism, is known as Psychological Capital. Proactive Attitude (PA) is a personality trait that is associated with motivation and action. It is a notion that there is an array of opportunities for change that can be made to improve oneself and one's environment. The Main objective of this study was to examine the relationship between Psychological Capital and Proactive Attitude among Emerging Adults. A sample was collected from a specific age group of 18 to 25 belonging to several colleges in Kerala. The research instruments used were Psychological Capital Assessment Scale and Ralf Schwarzer's Proactive Attitude Scale. The Statistical analysis was done using SPSS. The data was not normally distributed. Statistical analysis used was Spearman's Rank Correlation. The finding of the study indicates that there is significant relationship between all four subscales of Psychological Capital- Hope, Efficacy, Resiliency, Optimism and Proactive Attitude among Emerging Adults. All the four elements of Psychological Capital were positively correlated with Proactive Attitude.

Keywords: Efficacy, Hope, Optimism, Proactive Attitude, Psychological Capital.

ICMCTTAP034

Emotional Intelligence, Mindfullness and Resilience among Emerging Adults

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ABSTRACT

In this workaholic world the emerging adults are dealing with stressful situations. They find difficulty in coping or adapting with successive and challenging routines in daily life including both personal and external factors. Emotional Intelligence refers to a set of experiences, including self- awareness mood management, self-motivation, empathy and managing relationship. Mindfulness is inherently a state of consciousness which involves attending to one's moment to moment experience. Resilience which means the ability to adapt and bounce back from adversity guided by Emotional Intelligence. The prime focus of the study is to find the relationship between Emotional Intelligence, Mindfulness and Resilience. The study consisted of 97 participants of age 18-25 years old and the participants were selected using convenience sampling method. The research instruments used were Brief Emotional Intelligence Scale-10 (BEIS-10), Mindfulness Attention Awareness Scale (MAAS-15), Nicholson McBride Resilience Questionnaire (NMRQ-12) to measure Emotional Intelligence, Mindfulness and Resilience respectively. The data was collected by using Google form. The collected data was analysed using SPSS. The data was not normally distributed. The statistical technique used was Spearman's Rank Correlation. The result obtained shows that there is a significant correlation between Emotional Intelligence and Mindfulness as well as emotional intelligence and Resilience among emerging adults. The result also showed that there is significant relationship between Mindfulness and Resilience among emerging adults. This study could serve as a basis for building and promoting adequate coping strategies and mental health interventions for the emerging adults.

Keywords: Emotional Intelligence, Mindfulness, Resilience, Emerging Adults, Spearman's Rank Correlation

ICMCTTAP035

Music Preference and Emotional Expressivity among Emerging Adults

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ABSTRACT

Emerging adults, who are in the process of evolution from adolescence to complete adulthood. Music preference refers to what kind of music you like at a specific moment, compairing one song to another. It's about your overall style of music over a long period, showing what kind of music you tend to enjoy consistently. Emotional expressivity referes to how someone shows or communicates their emotions, whether through facial expression, body language, voice tone or even actions. The purpose of the present study aimed to explore the relationship between music preference and emotional expressivity among emerging adults. The sample chosen for the study conducted among 107 emerging adults ages between 18-25 (Females =53, Males =54) in Kollam, Pathanamthitta and Kottayam of Kerala through convenience sampling method. The measures used were Short Test Of Music Preference (Rentfrow & Gosling,2003), Emotional Expressivity Scale (Kring et.al, 1994) and personal data schedule. Statistical procedure of Spearman's Correlation analysis were done using IBM SPSS Statistics 25. The results of the study showed that there is no significant relationship between music preference and emotional expressivity among emerging adults.

Keywords: Music preference, Emotional expressivity, Emerging adults

ICMCTTAP036

Big 5 Personality Traits, Imposter Phenomenon and Hypercompetitive Attitude among High-Performing Emerging Adults

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ABSTRACT

Emerging adults refers to a developmental phase in the human life cycle following adolescence and preceding adulthood. “Personality is generally defined as an individual’s unique and relatively stable patterns of behaviour, thoughts, and emotions”. Hypercompetitive attitude reflects the need to compete and win at all costs as a means of maintaining or enhancing one's self-worth . Impostor syndrome refers to the state that affects high achievers who are unable to internalize and accept their achievements. This study seeks to analyse the significant relationship between Big 5 Personality Traits, Hypercompetitive Attitude and the Imposter Phenomenon among high-achieving emerging adults. Samples were collected using a purposive sampling technique. Research instruments used in the study were the Big Five Inventory - 10, Hypercompetitive Attitude Scale and Imposter Phenomenon Scale. The data was analysed using SPSS. The statistical technique used was Spearman’s Rank Correlation. The finding showed that there was a significant negative relationship between extraversion and imposter phenomenon, a negative relationship between agreeableness and hypercompetitive attitude, a positive relationship between neuroticism and imposter phenomenon and a positive relationship between hypercompetitive attitude and imposter phenomenon.

Keywords—Big 5 Personality; High Achieving Emerging Adults; Hypercompetitive Attitude; Imposter Phenomenon.

ICMCTTAP037

GreenThumb Advisor: Smart Farming Solutions for Higher Yields and Informed Decisions

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ABSTRACT

GreenThumb Advisor is a Python-driven application designed to enhance agricultural productivity by providing Indian farmers with actionable, data-informed insights. Leveraging advanced machine learning techniques, the application recommends optimal crop selections based on vital soil and environmental indicators—such as nitrogen, phosphorus, potassium levels, pH, humidity, and rainfall—to align with region-specific conditions. Yield forecasting, powered by historical crop data, offers farmers predictive insights into potential harvest outcomes, supporting informed financial planning. In addition to crop guidance, GreenThumb Advisor integrates a 30-day weather forecast, enabling farmers to plan agricultural activities around forecasted weather patterns. Real-time notifications ensure farmers receive critical updates through SMS and email, minimizing weather-related risks. The application also supports practical farm management with features such as emergency service mapping, tailored fertilizer and pesticide recommendations, market price tracking and a library of awareness videos. With its intuitive interface, GreenThumb Advisor empowers farmers to improve yield, make data-driven decisions, and foster sustainable agricultural practices.

Keywords: Crop Selection, Yield Forecasting, Weather Alerts, Farm Management, Fertilizer Recommendations, Market Price Tracking, Machine Learning, Real-Time Alerts

Fake Feedback Detection Using Machine Learning

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ABSTRACT

The prevalence of false feedback increases the reliance on online media for information and interaction, which is a major challenge for businesses, consumers and reputation management. This project presents a new way to detect false positives using machine learning techniques. We propose a multi-modal model that uses natural language processing (NLP) and supervised learning algorithms to analyze text response data. Our methodology includes sentiment analysis, the extraction of language features and behavioral patterns to distinguish between genuine feedback and fake news. We evaluate our model using a comprehensive data set that includes real and synthetic feedback samples. We are Analyzing that our approach which we are going to implement in future that can achieves high accuracy and robustness and is significantly better than traditional detection methods. In addition, we discuss the implications of our findings for increasing trust in online reviews and the potential for feedback monitoring. This initiative will contribute to the growing digital presence and provide a scalable solution for stakeholders seeking to reduce the impact of false positives in various domains.

Keywords: Reputation Management, Sentiment Analysis, Scalable Solution, Robustness, Multimodal Mod

ICMCTTAP039

The Relationship between Emotional Regulation and Peer Pressure among School Studence

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ABSTRACT

Emotion regulation is the ability to adjust one's emotion according to certain circumstances. Peer pressure refers to the influence exerted by peers or colleagues to conform to certain social conventions, behaviors, or mindsets, often resulting in changes to one's own perspective, values, or behavior. The study aims to asses the relationship between emotional regulation and peer pressure among school student. The sample consisted of 120 adolescents age between (16-18) who are school students (60 boys and 60 girls). The data were gathered using the Emotional -Regulation questionnaire (ERQ) (Gross. J. J& John. o. p 2003) and Peer Pressure Questionnaire- Revised (PPQ-R) (Sunil Saini 2016). IBM SPSS statistics 25 was used to do the statistical process of spearman's correlation analysis. The result indicated that there was no relationship between emotional regulation and peer pressure. But the findings showed that there exist a significant negative correlation between expressive suppression, a subscale of emotional regulation and peer pressure which is significant at 0.05 level.

Keywords: Emotional Regulation, Peer Pressure, School Students.

ICMCTTAP040

Social Media Engagement & Psychological Wellbeing among Emerging Adults

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ABSTRACT

Social media engagement has become an integral aspect of modern life, with individuals increasingly using these platforms for various purposes, including social interaction, information sharing, gaming and other entertainment purposes. Psychological well being is a state of positive mental health in which a person experiences a sense of happiness, contentment and fulfillment. A previous study showed that there is a link between social media engagement and increased mental health symptoms. This study aimed to explore the relationship between social media engagement and psychological well-being among emerging adults. A total of 145 participants were recruited using a convenience sampling method. Social media engagement was evaluated using the social media engagement questionnaire (SMEQ) and psychological well-being was evaluated using the psychological well being scale. The data collected through online surveys, were analyzed using a correlational research design. It was found that social media engagement strongly correlates with the three aspects of psychological well-being among emerging adults. Results indicated that social media engagement was negatively correlated with autonomy, environmental mastery and positive relation with others. These findings suggest that the nature of social media engagement plays a significant role in influencing psychological well being. Further studies should investigate these changes in greater depth, particularly with larger and more diverse samples, to gain a better understanding of how specific aspects of social media use affect mental health and psychological well being.

Keywords: Autonomy; Emerging Adults; Psychological Well Being; Social Media Engagement

ICMCTTAP041

Development and Characterization of Biopolymer Film from Sugarcane Bagasse for Packaging application

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ABSTRACT

The rising environmental concerns associated with synthetic plastics, particularly their non-biodegradable nature, have driven the demand for sustainable and eco-friendly alternatives. In response, this study focuses on the development and characterization of a biopolymer film derived from sugarcane bagasse, an abundant agro-industrial waste. Bagasse presents an attractive raw material for biopolymer development due to its low cost, renewable nature, and potential for reducing waste. In this research, we explored the combination of carboxymethyl cellulose (CMC) and sugarcane bagasse fibers to develop biodegradable films. Various polymers, including polyvinyl alcohol (PVA), starch, sodium alginate, and natural gums like gum arabic, guar gum, and xanthan gum, were investigated to optimize the film's properties. After several trials, sodium alginate and guar gum proved to be the most effective polymer, resulting in a biopolymer film with enhanced mechanical strength, flexibility, and biodegradability. The biopolymer film exhibited promising results in terms of tensile strength, water vapor permeability, and thermal stability, making it suitable for use in food packaging applications. This novel material offers a viable alternative to conventional plastic packaging, contributing to environmental sustainability by reducing plastic waste and utilizing an otherwise discarded agro-waste product. Thus, the development of such biopolymer films holds significant promise for the food industry and supports broader efforts toward the creation of biodegradable packaging materials.

ICMCTTAP042

Optimization of the Inoculum – Substrate Ratio for Enhanced Hydrogen Production in Anaerobic Dark Fermentation

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ABSTRACT

Biohydrogen as an alternative, renewable energy source has attracted significant research attention due to its potential for sustainable fuel generation with minimal environmental impact. The integration of waste organic materials as substrates in the biological hydrogen generation process enhances its attractiveness through waste volarization. This study investigates the hydrogen-producing capabilities of Citrobacter freundii, a facultative anaerobe, using sugar cane bagasse as substrate under dark fermentation conditions. The bacterium's hydrogen production potential was assessed with sugar cane bagasse as carbon substrate. Based on its acclimatization potential, experiments were carried out to optimize the inoculum size and the substrate concentration. Batch fermentation experiments were designed using full factorial methodology to study the effect of these two parameters under anaerobic conditions. The substrate concentration was varied at 10%, 20% and 30% of the carbon content based on standard media composition, while the inoculum size was varied at 5%, 10% and 15% (v/v). The dark fermentation experiments were maintained at 37°C with the initial media pH set to 6.5. The evolved gas was collected by water displacement method and analysed by a pellistor based hydrogen gas detector. The results demonstrated that Citrobacter freundii effectively acclimatized to sugar cane bagasse as carbon substrate for hydrogen production. The optimal substrate concentration and the inoculum size was found to be 20% and 10% (v/v) respectively, yielding the highest volume of hydrogen gas of 600 mL of H2/L of growth media. This study highlights the potential of Citrobacter freundii for biohydrogen production, emphasizing the significance of interwinding impact of the inoculum-substrate ratio and its optimization on hydrogen yield. The optimization of media parameters represents a crucial stage in transitioning the process from batch scale to continuous scale of hydrogen production. The future studies are being carried out to investigate the process parameters like the substrate input rate and pH variations in continuous fermentation systems to optimize hydrogen production rate and yield. These findings contribute to the growing field of research on biohydrogen production and process optimization for developing cost-effective and sustainable biohydrogen production technologies. Key words: Dark Fermentation, Biohydrogen Production, Citrobacter freundii, Sugarcane Bagasse Valorisation, Inoculum-Substrate Optimization.

A Study on the Impact of E-Learning Platforms

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ABSTRACT

This report aims at determining the effects of e-learning platforms on students in Kristu Jyoti College of Management and Technology. A survey of 60 students revealed that they access e-learning platforms 2-3 times a week, mainly for academic and skill development courses. Users were generally satisfied with their user interface and design but faced technical issues, limited instructor interaction, and difficulty in staying engaged. Results indicate moderate improvement in achievement and successful online assessment. The study therefore concludes that e-learning platforms are beneficial, flexible, and effectively meet the different learning styles. Some recommendations will be focusing on technical issues and instructor interaction for improvement in e-learning experience.

Keywords: E-Learning, Online Education, Student Satisfaction, Academic Performance.

ICMCTTAP044

Emotional Styles, Psychological Inflexibility and Big-Five Personality Traits among Emerging Adults

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ABSTRACT

Psychological inflexibility, or difficulty adapting to change, has been linked to mental health challenges. Emotional styles shapes how individuals experience and respond to their environment, influencing well-being and social adaptation. The Big Five personality traits defines core aspects of personality critical to personal and social success. By exploring these dimensions, this study aims to clarify how psychological inflexibility affects emotional and personality traits in young adults, offering insight for potential interventions to support adaptive development. The sample consisted of 148 emerging adults (ages 18–25) from the Kerala region, recruited using a convenience sampling technique. The Emotional Style Questionnaire (ESQ), Acceptance and Action Questionnaire (AAQ-2), and Ten-Item Personality Inventory (TIPI) were employed to assess emotional styles, psychological inflexibility, and Big Five personality traits, respectively. Data collection was conducted through Google Forms, and Spearman's Rank Correlation was used to analyze the relationships among the variables.The results revealed a significant negative correlation between psychological inflexibility and several emotional style dimensions, specifically outlook, resilience, self-awareness, sensitivity to context, and attention. Additionally, psychological inflexibility was negatively associated with the Big Five personality traits of agreeableness, openness to experience, and emotional stability. These findings suggest that higher levels of psychological inflexibility are associated with less adaptive emotional styles and personality traits, potentially affecting well-being and social functioning in young adults. This study underscores the importance of fostering psychological flexibility to support adaptive emotional styles and healthy personality development, ultimately promoting mental health and social adaptability in emerging adulthood.

Keywords: Emotional Styles, Psychological Inflexibility, Big-Five Personality, Emerging Adults

ICMCTTAP045

The Influence of Social Connectedness on Prosocial Behavior among Young Adults

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ABSTRACT

Social connectedness is a person's characteristics about how well they interact with others in social contexts. In addition, social connectedness usually helps us in enhancing interpersonal relationships and thereby foster the growth of society. Prosocial behavior is a self-directed action of helping others without expecting any external rewards in return. Young adulthood is a period of developing social interactions therefore, prosocial behavior is an important aspect in this stage. In this modern era, technology has a great impact on social connectedness and prosocial behavior. The purpose of the study was to examine the influence of social connectedness on prosocial behavior among young adults. The data was collected among 100 young adults (18-21) in the Kerala region. The Social Connectedness Scale- Revised and Prosocialness Scale for Adults (PSA) were used for data collection. The collected data was analyzed based on the Spearman's correlational research design using SPSS. The relationship between social connectedness and prosocial behavior was significant.

Keywords: Social Connectedness, Prosocial Behavior, Young Adults

ICMCTTAP046

Elucidation of Bioactive Compounds and *In silico* Studies for Elicitor Activity in *Pisum sativum*(Garden Pea)

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ABSTRACT

Garden Pea(*Pisum sativum*) is a widely cultivated legume known for its nutritional and health benefits. This study focuses on the elucidation of bioactive compounds in *Pisum sativum* and their potential elicitor activity. The study of bioactive compounds in plants has gained momentum due to their potential therapeutic. The first phase included the spraying of elicitor (abiotic- salicylic acid and biotic *Aspergillus Niger*) on pea plants. The second phase involved determining of the bioactive compounds present in *Pisum sativum* using techniques such as phenolic assay, flavonoid assay, anti-oxidant assay as DPPH(2,2-Diphenyl-1-picrylhydrazyl), Iron to iron reducing power assay, and also performed FTIR (Fourier Transform Infrared Spectroscopy) to characterize functional compounds. These secondary metabolites are known for their antioxidant, anti-cancerous, and anti-inflammatory properties, making them valuable for potential pharmacological applications. *In silico* analysis assessed the binding affinity of selected compound of the plant (chlorogenic acid), to antioxidant, anti-cancerous, and anti-inflammatory receptors. Computational tools, including PyRx, PyMol, and LigPlot++, predicted interactions and binding energy. The results indicated a strong binding affinity for the compound selected, suggesting that this could effectively initiate responses with antioxidant, anti-cancerous, and anti-inflammatory properties. This research highlights the morphological characteristics and also phytochemical profile of the control vs treatment plants. These elicitors showed positive results by enhancing the growth and also showing better phytochemical profiles.

Keywords: Pisum sativum, elicitor, anti-oxidant, phenolic, flavonoid, DPPH(2,2-Diphenyl-1-picrylhydrazyl), FTIR (Fourier Transform Infrared Spectroscopy), In silico studies

ICMCTTAP047

Unleashing the Power of Artificial Intelligence in Geological Remote Sensing: A New Era of Precision, Innovation, and Environmental Stewardship

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ABSTRACT

This paper delves into the revolutionary impact of Artificial Intelligence (AI) on geological remote sensing, shedding light on recent advancements, practical applications, and potential future developments. By leveraging machine learning (ML) and deep learning (DL), AI has become essential for efficiently processing, analyzing, and interpreting large datasets from satellite imagery, aerial surveys, and ground-based sensors. This paper examines AI's transformative applications in mineral exploration, disaster assessment, groundwater mapping, and land-use planning, while also exploring key challenges and future directions. Through detailed case studies and a review of AI limitations, this paper provides an in-depth view of AI's potential in driving innovation and environmental sustainability within the field of geology.

Keywords: AI, Geological Remote Sensing, Mineral Exploration, Environmental Sustainability, Machine Learning

ICMCTTAP048

The Role of Cloud Computing In Scaling Startups: Balancing Technology and Business Growth

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ABSTRACT

While the benefits of cloud-computing strategies are indisputable, many start-up founders do not know how to meld utilizing its advantages and minimizing its disadvantages. This research utilizes the rich empirical context offered by distinct features of successful and unsuccessful businesses and investigates the intricate relationship between cloud computing and business advancement for startups. Investigating nuances of the cost structure dynamics, security determinants, and organizational consequences, we show various ways in which different types of startups approach cloud computing strategies. As our findings suggest, cloud computing is successfully integrated into all aspects of teh company strategy, team competencies, and growth objectives but the deployment of the cloud is much more than a mere technical deployment. We provide relevant recommendations for entrepreneurs of start-ups by analyzing the strategies used by more successful imitations of Zoom, Slack and Dropbox and some less successful ones. The paper advances practical recommendations aimed at helping the founders harness the potential of the cloud.

Keywords: Cloud Computing Strategies, Startups Business Advancement, Cost Structure Dynamics, Security in Cloud Computing, Entrepreneurial Strategies

ICMCTTAP049

Virtual Combat Training: The Role of VR in Enhancing Martial Arts Practice and Education

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ABSTRACT

This paper focuses on the utilization of the relatively new technology – virtual reality or VR as the approach to practicing martial arts. The advancement in body capture, physics simulation and natural interactions from the VR has enabled the training of high intense martial arts with little form but focus on skills. We foresee, the use of VR as a motivational tool and more importantly, for martial art practitioners at all levels, providing a safe environment to practice required and desired techniques, strengthen the required motor skills and develop the required situation awareness through replication of battle and customized training programs. In a more elaborate way, the use of virtual reality when practicing martial art makes it possible to record, evaluate and optimize the practice performance from various angles thus making the practice more enhancing. In addition, categories as different as martial artists or practitioners with various goals may benefit from VR applications that can present different levels of fighting simulation and, simultaneously, visual fighting stimuli of any size. The research involves positioning of the recent literature and case studies outlining the advantages and/or disadvantages of using VR in martial arts with emphasis on the feature of price, availability, and nausea of which the last one if unique to VR. Analyzing the data in the present there is no sign that VR would eventually replace traditional pedagogy but it appears to be a very good supplement to it and widen the circle of individuals who may find martial arts applicable opening doors for VR to be used more often as training tool for other skills based activities as well.

Keywords: VR, Virtual Reality, Martial Arts, Technology, Education, Arts, Augmented Reality, Body Tracking, Physics-Based Simulations, Personalized Training Regimens, Customizable Practice

ICMCTTAP050

Cross-Platform Innovation: The Rise and Impact of Flutter in Modern App Development

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ABSTRACT

In an era where smartphones have become commonplace and everyone seems to own one, the question that most of the businesses state is: how do we make amazing apps, with little money and not so much hassle. This paper looks into flutter which is Google's solution for this development problem. With practice based instances as well as contextual understanding, we demonstrate how developers have utilized Flutter to build amazing apps for iOS, Android Phones and even desktop computers – all with a single code base. Our study moves past the standard technical accolades and considers the impact of Flutter on the structure of projects: how it is revolutionizing inter-team cooperation, its greatest attributes, and sometimes, its biggest weaknesses. From the scope of the startups that have been successful to the larger enterprises that have adopted, we examine what is and what is not appealing about Flutter and why some developers find Hot Reload advantageous while others find the learning with Dart problematic. Based on actual developer stories and existing dynamics in the market, we provide quite an agreeable viewpoint on what Flutter means for the future of application development especially in the context of shifting mobile trends. In case you are a developer or a bussiness decision maker assessing the options in technology, this paper tries to deal with realistic issues relevant to the place of Flutter and its solutions in the app development.

Keywords: Cross-Platform Apps, Single Code Base, Desktop Application Support, Hot Reload Feature, Flutter Development

ICMCTTAP051

A Study on the Relationship between Boredom Proneness, Self Consciousness and Life Satisfaction among Employees

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ABSTRACT

BP is an enduring individual difference feature linked to a variety of detrimental outcomes. It is characterized by both frequent and strong feelings of boredom. SC is the understanding of one's own physical being in a time-space continuum and how it interacts with other people and the surroundings. LS is the attitude and feelings about one's own life.This study investigates the relationship between BP, SC, and LS among employees. The study aims to explore how individual differences in boredom proneness and self-consciousness may influence employees' overall life satisfaction. By examining these variables, this research seeks to contribute to a deeper understanding of the factors that contribute to employee well-being and job satisfaction.

Keywords: Boredom Proneness; Self Consciousness; Life Satisfaction

ICMCTTAP052

SaaS (Software as a Service) and its Impact on Business Scalability

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ABSTRACT

Cloud computing is an industry that has continued to evolve at a dizzying pace and few evolutionary advancements have changed the way businesses operate and grow quite like Software as a Service (SaaS). In this study, we explore the relationship between SaaS adoption and business scalability in the context of providing cloud-based software solutions that enable organizations to sustain their growth while keeping operational costs in check. Through a look at subscription models, technology infrastructure requirements, and real world examples, the study demonstrates how SaaS is gradually removing traditional barriers to scaling (such as high fixed cost investments & complicated IT infrastructure management), allowing companies to scale their business more like an ideal SaaS model would. It also explores some of the most important data security and data management problems that corporations face while rapidly scaling. The research provides insights into future trends that will pave the way for the next evolutionary leap in business scalability by exploring the key trends related to integration of artificial intelligence and machine learning with SaaS platforms. However, these results also highlight that although SaaS promises numerous benefits for the growth of businesses, success will depend on security, integration and organizational alignment factors. The study plays a key role in providing insights into how contemporary business enterprises can utilize SaaS to form effective and resilient scalability tactics in a digital economy.

Keywords: Software as a Service (SaaS), Business Scalability, Cloud Computing, Digital Transformation, Infrastructure Management, Technology Innovation

ICMCTTAP053

Strategic Entrepreneurship in the Tech Era: Innovation, Growth, and Risk Management

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ABSTRACT

The increasing relevance of strategic entrepreneurship relates to the rise in the competitive environment, particularly in obtaining growth in innovation and new products or services. This paper delineates the scope of strategic entrepreneurship which merges the concepts of entrepreneurship and strategic management help in the management of the interwoven world of technology and entrepreneurial world. It means, therefore, that such entrepreneurship necessitates awareness of the way such an innovation might be used strategically.

This research focuses on the new developments in fourth industrial revolution global trends namely: artificial intelligence, Internet of Things, and blockchain. It examines how these latest technological innovations may open fresh business opportunities for new entrepreneurship or expand market opportunities. On the other hand, it touches upon the challenges entrepreneurs face by engaging in this rapidly transforming digital world, an increasingly competitive industry with respect to cyber security challenges, as well as legal restraint issues.

Therein, the paper recommends operation within the ecosystem of technology based on an analysis and comparison of the experiences both of failed and successful entrepreneurs within the tech industry. Some of the emerging trends now placed with their possible implications for strategic entrepreneurship include artificial intelligence, quantum computing, sustainability, work-from-home, and data intelligence vis-à-vis decision making.

Keywords: Strategic Entrepreneurship, Competitive Environment, Innovation Growth, Entrepreneurship and Strategic Management, Fourth Industrial Revolution

ICMCTTAP054

The Future of Quantum Computing: Opportunities and Challenges

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ABSTRACT

Quantum computing represents a paradigm shift in computing power that uses quantum mechanics to solve problems for which known algorithms are exponentially harder on classical computers. The future of quantum computing will bring to bear quite a few opportunities, as well as challenges, in its further development and application. Here, we should discuss the latest developments, theoretical models, and applied approaches which shall have enormous impact potential in domains such as cryptography, artificial intelligence, and even materials science, to name just a few of them. Added to this are important challenges: hardware scalability, correction, and the necessity for a comprehensive framework of quantum algorithms. Of course, it will also turn out to be useful for the research and industry professionals in better navigation along the sometimes winding road of development of quantum technology.

Keywords: Quantum Computing, Quantum Mechanics, Classical Computers, Quantum Algorithms, Error Correction, Quantum Algorithm Framework, Artificial Intelligence, Materials Science

ICMCTTAP055

Modeling & Analysis of Cylinder Block for V8 Engine

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ABSTRACT

Globalization has dramatically reshaped the landscape of local businesses, influencing everything from competition to consumer behavior. The integration of global markets has led to increased competition, as small and medium-sized enterprises (SMEs) must now compete with international brands that often have greater resources and brand recognition. This shift has driven local businesses to innovate and adapt in order to meet global standards and customer expectations.Global supply chains have allowed local businesses to access a wider range of materials and technologies, leading to improved product quality and diversity. However, reliance on foreign markets and suppliers also exposes them to global economic fluctuations, making them more vulnerable to external shocks like currency changes or trade tariffs. At the same time, globalization has encouraged the spread of digital marketing and e-commerce, enabling local businesses to reach new audiences both domestically and abroad.While globalization offers growth opportunities, it can also threaten traditional industries and local cultures by pushing standardization over uniqueness. For local businesses to thrive in this environment, a balance between embracing global advancements and preserving local identity is essential.

Keywords: Globalization, Local Business, Competition, Supply Chain, Digital Marketing, Economic Fluctuations, Cultural Preservation, Small and Medium-Sized Enterprises.

ICMCTTAP056

AI-Enhanced Camera Systems for Real-Time Identification of Expired Vehicle Pollution and Insurance via License Plate Recognition

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ABSTRACT

In the recent past, developments in intelligent transportation systems have called for the need to implement automatic scanning solutions. Such scanning solutions were required to scan vehicles against environmental and safety standards. The following paper discusses the application of artificial intelligence in camera systems to automatically scan for expired pollution certificates and insurance using number plate recognition capability. This vehicle registration number captures in real time and crosschecks it with the centralized database through advanced image processing and machine learning algorithms. With this, authorities can immediately check and verify if pollution control and insurance certificates are valid; thus, it reduces manual inspections and provides improved efficiency. The proposed system uses CNN-based high-accuracy license plate detection and OCR for obtaining the extracted registration number. That number is then passed over an AI model to identify vehicles whose certifications have expired and flags them for further action. Experimental results demonstrate that the system will reliably identify, albeit quickly, non-compliant vehicles with minimal error, thus making it a viable solution in an urban and highway setting. This technology presents much promise for regulatory bodies looking to enforce compliance of vehicles for safer, ecologically friendly roads.

Keywords: Artificial Intelligence, License Plate Recognition, Expired Documents Detection, Pollution Certificates, Vehicle Insurance, Optical Character Recognition

ICMCTTAP057

Scope of Gene Manipulation in Agriculture

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ABSTRACT

Agricultural production in Kerala, a state known for its varied agro-climatic conditions, encounters a multitude of challenges that have adversely affected food and crop productivity over time. Factors such as soil degradation, pest outbreaks, plant diseases, erratic monsoon patterns, and climate change have significantly hindered the growth and stability of crop yields. This paper investigates these critical challenges, examining the elements that contribute to the agricultural struggles in Kerala. To tackle these issues, we explore the promise of modern gene manipulation techniques, including genetic engineering and gene editing, in improving crop resilience, yield, and nutritional value. We focus on how gene editing methods like CRISPR-Cas9 facilitate targeted enhancements, such as greater drought resistance, pest tolerance, and increased crop yields, providing solutions to Kerala's urgent agricultural challenges. Our research includes a longitudinal analysis of crop production data to evaluate the tangible effects of these biotechnological advancements. The findings reveal that gene manipulation has led to significant improvements in crop productivity, pest management, and resilience to environmental pressures over the last decade. This report seeks to deliver a thorough assessment of how gene manipulation techniques have advanced sustainable agricultural practices in Kerala and offers perspectives for future applications to enhance food security in the region.

Keywords: Gene Editing, Genetic Engineering, Crop Resilience, Pest Resistance, Climate Adaptation, Food Security, Sustainable Farming, Crop Productivity

ICMCTTAP058

Ethical Imperatives and Technical Realities: Implementing the Right to be Forgotten in Artificial Intelligence

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ABSTRACT

The "Right to be Forgotten" (RTBF) has become a crucial aspect of data privacy in the digital age. It addresses the challenges of managing and erasing personal data in a world dominated by artificial intelligence (AI) and machine learning (ML). This paper examines the implementation of RTBF within AI and ML systems. It includes a comparative analysis of regulatory frameworks in the European Union (EU), the United States (US), and India. The EU's General Data Protection Regulation (GDPR) sets a global benchmark with explicit provisions for data erasure and RTBF. It requires AI systems to comply with strict data handling and deletion protocols. In contrast, the US lacks a federal RTBF regulation, relying instead on a patchwork of state laws and sector-specific regulations. This presents unique challenges and opportunities for AI and ML practitioners. India's Digital Personal Data Protection Act (DPDP) introduces RTBF focusing on consent and transparency, aiming to balance innovation with privacy concerns. This paper explores the technical and legal implications of implementing RTBF in AI and ML, including data minimization, retraining models, and the ethical considerations of balancing individual rights with the collective benefits of data-driven technologies. The implementation of RTBF should also be carefully handled alongside other legal rights such as the right to freedom of speech and expression. By examining case studies and current practices, this research offers insights into developing robust RTBF mechanisms that align with diverse regulatory landscapes, ensuring that AI and ML advancements are achieved without compromising fundamental privacy rights.

KEYWORD: Right to be Forgotten, Artificial Intelligence, Regulation, Personal Data, Technologies.

ICMCTTAP059

Deep Learning Techniques for Analyzing EEG Data

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ABSTRACT

While the potential of deep learning for medical diagnostics is vast, the application of these methods in EEG-based seizure prediction and classification remains challenging for researchers. This study leverages the rich empirical data found in EEG recordings of epilepsy patients to explore the relationship between deep learning techniques and accurate seizure detection. By analysing the nuances of signal processing, classification performance, and interpretability in clinical settings, we uncover varied approaches for integrating deep learning within seizure prediction models. As our findings suggest, deep learning methods can be embedded within comprehensive clinical workflows and enhance prediction accuracy, but successful deployment goes beyond algorithmic performance. We provide relevant insights for clinicians and researchers by evaluating strategies used by successful models in EEG analysis and assessing limitations faced by less effective ones. The paper advances practical recommendations aimed at optimizing deep learning strategies for EEG data in seizure prediction and classification, ultimately contributing to improved epilepsy patient outcomes.

Keywords: Deep Learning, EEG Analysis, Seizure Prediction, Epilepsy, Medical Diagnostics in AI

ICMCTTAP060

Privacy Loss in India: A Comparative Analysis of Europe Union's GDPR vs. India's IT Act

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ABSTRACT

This study contrasts India's IT Act with the GDPR, which offers robust protection for personal data, in order to identify significant differences and gaps concerning data protection, individual rights, and enforcement strategies. The main provisions of India's Information Technology Act (IT Act) will be examined, and its effectiveness in safeguarding personal information will be assessed. Additionally, the current state of data privacy in India is contrasted with that of the European Union. While the GDPR provides a strong and comprehensive framework with particular rights for persons and stringent standards for data processing, the IT Act focuses largely on cyber security and data breach management, with little attention paid to protecting personal data. This paper ends with suggestions for improving India's data privacy policy that take into consideration the country's unique sociopolitical and technological challenges while implementing EU's GDPR requirements. The results underscore the significance of India establishing a thorough legal framework to adhere to international data privacy norms while also preserving individual liberties and corporate responsibility. This study compares these two regulatory regimes in an effort to identify possible areas where India's data protection laws and regulations should be strengthened. The paper concludes with suggestions for the future development of India's regulations on privacy, emphasizing the importance of shifting towards a more thorough and adequate strategy that safeguards individual privacy.

Keywords: GDPR, IT Act, Data Privacy, Personal Data, Data Protection, Europe Union

ICMCTTAP061

Short term Load Forecasting using Resource Allocation based Artificial Neural Network

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ABSTRACT

Load forecasts are extremely important for energy suppliers, financial institutions, and other participants in electric energy generation, transmission, distribution, and markets. Load forecasting helps an electric utility to make important decisions including decisions on purchasing and generating electric power, load switching, and infrastructure development.

The use of artificial neural networks (ANN or simply NN) has been a widely studied electric load forecasting technique. These networks are essentially non-linear circuits that have the demonstrated capability to do non-linear curve fitting. The use of artificial neural network has received increased attention in recent years, because of its usefulness in reducing the needs for complex mathematical models in problem solving.

In this paper we use a new approach for load forecasting using Radial-Basis function networks (RBF). These networks being the members of a class of neural network models address the problem of curve fitting that is approximation in high dimensional space that provides a best fit to the training data, measured by pre-selected statistical criteria. Because of this non-linear nature of these models, the behaviour of the load prediction system can be captured in a compact, robust, and more natural representation. In the present work, resource allocation network (RAN), a type of RBF network with one hidden layer has been used as load forecasting model.

Keywords: Load forecasting, short term, artificial neural networks (ANN), Resource Allocation Network (RAN), Radial-Basis function networks (RBF).

ICMCTTAP062

Innovations in Green Technology: Paving the Way for a Sustainable Future

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ABSTRACT

Growing environmental challenges due to climate change, pollution and resource depletion require new approaches to ensure sustainable development. Green technology has emerged as a transformative solution to these global problems. which promotes the reduction of greenhouse gas emissions conservation of resources and ecological balance The role and impact of green Technology in various sectors is examined. Important innovations such as renewable energy systems are being explored. Electric Vehicles (EV) Precision Agriculture and recycling techniques to highlight their effectiveness in reducing environmental damage. At the same time, it supports economic growth. Renewable energy sources such as solar and wind power It reduces dependence on fossil fuels, while electric cars are dynamic and have zero emissions. Sustainable practices in agriculture such as agroforestry and regenerative agriculture are revolutionizing shared transportation. Increase the efficiency of resources and biodiversity Improved waste management methods This includes recycling and circular economy initiatives. It greatly reduces pollution and waste from resources. The study highlights the benefits of adopting green technology, such as reducing carbon footprint. Better air and water quality Resource efficiency and cost savings This is despite challenges such as high initial costs and infrastructure requirements. Technological advances and supportive policies have driven widespread adoption. By promoting innovation and cooperation green technology paves the way for a sustainable future that balances environmental protection. economic growth and the well- being of society This article emphasizes the urgent need to integrate green technologies into global development strategies to combat environmental degradation and secure the planet for future generations.

Keywords: Green Technology, Sustainability, Renewable Energy, Energy efficiency and Environmental Innovation

ICMCTTAP063

Mental Health Analysis System Using Large Language Model

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ABSTRACT

Traditional mental health surveys in educational settings often provide a limited perspective on students' mental well-being, relying on standardized questions that fail to capture the complexity and individuality of each student's experience. To address this, a system leveraging Large Language Model (LLM) has been developed to dynamically generate personalized and adaptive questions in real time, based on students' previous responses. This personalized approach fosters deeper engagement and provides a more nuanced understanding of students' mental health. The system's adaptive nature ensures that each student's unique experiences and concerns are addressed, rather than relying on one-size-fits-all questionnaires. The data collected through this system is presented in an accessible, visually intuitive format, allowing educators to interpret the results quickly and effectively. This empowers them to adapt teaching strategies and implement targeted interventions that address specific mental health needs within the classroom. By integrating this system into educational settings, academic institutions can foster a more responsive and inclusive learning environment that prioritizes students' mental health. This approach not only enhances students' academic success but also promotes resilience and engagement by addressing mental health issues in real time. The system demonstrates the transformative potential of personalized AI in education, offering a scalable solution for improving student outcomes. It underscores the critical role of AI in creating healthier, more adaptive educational ecosystems capable of responding to the evolving mental health challenges faced by students today.

Keywords: Adaptive Surveys, AI, education, Large Language Models (llms), Mental Health, Mental Well-Being, Personalized Questions, Student Engagement, Targeted Interventions, Educational Ecosystems.

ICMCTTAP064

AI-Driven Diagnosis of Chronic Diseases through Pattern Recognition in Medical Data

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ABSTRACT

Fighting against global chronic disease increases the demand for innovative ideas to enable precise and timely diagnosis. A quantum-changing proposal will come about for an artificial intelligence-empowered framework for chronic disease diagnosis that will apply sophisticated automated pattern recognition on a series of medical datasets. Using machine learning algorithms considered appropriate, electronic health records, medical imaging data, and data collected using wearable sensors are analyzed for significant patterns and correlations completely overlooked in the conventional diagnostic approaches.

Data preprocessing is followed by a multi-phase approach to directly determining the right quality and relevance of identified information. Due to the intricate nature of the datasets, CNNs, and RNNs are employed to extract features. This is further enhanced through unsupervised learning algorithms that reveal latent patterns inside patient datasets that can suggest the onset or progression of chronic ailments together.

We deploy an expansive database comprising diabetic, cardiovascular, and respiratory patients to evaluate the performance of, having seen AI-based models previously outperforming conventional diagnostic approaches, thus showing an enormous potential for real-time applications, emerging in clinical scenarios.

We concentrated on studying what challenges AI diagnostics pose to healthcare systems: data privacy, model interpretability, and how healthcare professionals should adjust from working in isolation to cross-disciplinary collaboration with data scientists and policymakers. That is how, in the programming of this study, the crux of AI emerges in establishing a diagnostic approach to treat chronic diseases, allowing yet another paradigm shift in the future.

Keywords: Artificial Intelligence (AI), Chronic Diseases, Pattern Recognition, Electronic Health Records (EHRs), Medical Imaging, Wearable Sensors, Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs).

ICMCTTAP065

Barriers to E-Governance Adoption in Rural and Marginalized Communities: Challenges and Strategies for Digital Inclusion

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ABSTRACT

The reception of e-governance presents an uncommon chance to further develop public assistance conveyance, straightforwardness, and resident commitment across all locales. Notwithstanding, rustic and minimized networks keep on confronting huge difficulties in getting to these computerized administrations. Key hindrances incorporate restricted advanced foundation, low degrees of computerized proficiency, socio-social opposition, and lacking strategy support, which by and large prevent the fruitful execution of e-governance in these locales. This paper hopes to break down the specific obstacles to e-governance gathering in underserved networks, recognizing fundamental factors that add to the high level division. The audit studies existing composition on mechanized thought, context oriented examinations, and best deals with, uncovering understanding into the remarkable necessities of common locales in changing in accordance with an electronic organization model.To connect these holes, this exploration proposes a bunch of methodologies for working on computerized consideration, including the foundation of local area focused computerized framework, designated advanced proficiency programs, and socially versatile e-governance models. Besides, it proposes strategy proposals that focus on impartial admittance to e-governance, accentuating the significance of comprehensive policymaking in engaging underserved populaces. By tending to these boundaries, the review means to add to a more comprehensive computerized scene where e-governance fills in as a device for financial improvement in all networks, paying little heed to geographic or financial status. This exploration offers a complete structure to direct future e-administration drives and computerized consideration endeavors in provincial and minimized regions, advancing reasonable and comprehensive development in the advanced age.

Keywords—E-Governance, Digital Inclusion, Rural Communities, Digital Literacy, Policy Frameworks

ICMCTTAP066

A Study on Consumer Perception on Green Marketing

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ABSTRACT

As environmental concerns grow, green marketing emphasizing eco-friendly products and sustainable practices has become increasingly relevant for businesses and consumers. This study is investigated to trace out the preference of customers and customer satisfaction towards green products and green marketing . Specifically, it aims to assess customer satisfaction levels, identify factors influencing green product purchases, evaluate the awareness of eco-friendly options, and preference of consumers . Using a structured questionnaire, data were collected from 84 participants, offering insights into how marketing elements and product quality shape green purchasing behavior. Findings reveal a strong consumer inclination towards sustainable choices, with more interest in environmental protection as a purchasing motivation. This research underlines the potential of green marketing strategies to align business practices with consumer environmental values and provides recommendations for companies and policymakers to strengthen green product adoption.

Keywords: Eco-Friendly Products, Environmental Protection, Green Marketing, Marketing Elements, Sustainable Practices

ICMCTTAP067

A Study on Internationalisation of Higher Education among Youth

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ABSTRACT

This study explores the internationalization of higher education among youth focusing on the motivations, perceptions, and trends that influence students' decisions to pursue education abroad. Objectives include examining the reasons behind the choice for overseas education, identifying factors that attract students to foreign institutions, assessing the awareness levels regarding international education opportunities, and offering suggestions to retain talent within national institutions. Data were collected from 80 participants through questionnaires, revealing that factors like quality of life, advanced technology, and global exposure are primary motivators for studying abroad. Although international education is perceived as a promising opportunity, challenges such as high living costs and cultural adaptation were highlighted. The findings offer insights for policymakers and educational institutions to develop strategies that enhance local educational opportunities and support students' aspirations for global competency.

Keywords: Internationalization, Higher Education, Youth Perception, Global Education

ICMCTTAP068

How will AI and Cyborg Technology Impact Human Lifestyle

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ABSTRACT

Artificial intelligence and cyborg technology can have the most significant fundamental changes in human existence in their most ordinary ways of living by supercharging the capacity of man with advanced machine capabilities. Health care, communication, labour, and even just the general process of living will be revolutionized with AI-driven systems and cyborg enhancements. Advances in prosthetic robots may leapfrog medical breakthroughs that expand physical and cognitive capacities, ensuring that some disabilities are eradicated, complementing all the natural human abilities. The future may indeed play out more in ways of redefining how work is distributed using the kind of opportunities created by AI and robotic augmentations that would allow people to get out of routine work and open up space for more creative or strategic roles. Now, perhaps daily life would be much richer in the presence of personalized AI companions, smart homes, and augmented reality interfaces. Thus, humans would relate to machines with a seamlessness that has not yet been felt. Such changes seem to be imbued with ethical and social problems: privacy, autonomy, inequality, and a new kind of dependence on technology. New human-computer interfaces developed with super enhanced humans or cyborgs may even create new means of social stratification, but AI within everyday life raises a whole new kind of surveillance and exploitation of personal data. Conclusion In short, no matter how fantastically imaginative AI and the cyborg would be to enhance the quality of life, their impact calls for better governance, where human values shall not be deserted while technology moves ahead.

Keywords: Artificial Intelligence Integration, Cyborg Technology, Human Enhancement, Healthcare Innovation

ICMCTTAP069

The Mindful Matrix: Exploring Social Media's Influence on Mental Wellbeing

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ABSTRACT

This paper explores the relationship between social media use and mental well-being through its dual impact on emotional health. Although social media connects the world, it also is often associated with feelings of loneliness, anxiety, and low self-esteem. In this paper, the intent is to explore these effects with a review of existing literature and empirical data. The study employs surveys and secondary data analysis to identify correlations between social media usage patterns and mental health outcomes, such as depression, anxiety, distorted self-image, sleep disturbances, and reduced attention span. Results indicate that excessive social media exposure intensifies negative psychological impacts, particularly among younger users, exacerbating feelings of isolation. The results point out that mindful engagement strategies, such as moderated usage, critical content evaluation, and fostering of relationships with people offline, should promote accountability from the platforms. Such research would call for interventions and policy development to create a balanced approach to digital connectivity, reducing its adverse impacts while maintaining its benefits.

Keywords: Social Media; Mental Wellbeing; Digital Connectivity; Psychological Impacts; Mindful Engagement

ICMCTTAP070

Social Engineering in Cyber Security

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ABSTRACT

Social engineering is a prominent and evolving cybersecurity threat that exploits human psychology rather than technical vulnerabilities to gain unauthorized access to information or systems. It encompasses a range of tactics, including phishing, pretexting, baiting, and tailgating, each designed to manipulate individuals into divulging confidential data, such as passwords or personal information. Unlike purely technical attacks, social engineering relies on human error, which makes it particularly challenging to defend against through traditional cybersecurity measures alone. This paper explores the mechanics of social engineering attacks, examining how attackers exploit trust, curiosity, fear, and other human emotions to manipulate their targets. We also review preventative strategies, including employee training, awareness programs, and multifactor authentication, to mitigate these risks. Understanding social engineering is essential to developing comprehensive cybersecurity frameworks that address both technological and human vulnerabilities, enhancing the overall security posture of organizations in an increasingly interconnected world.

ICMCTTAP071

A study on the Emerging Technology of Quantum Computing Poses Threat to Cybersecurity

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ABSTRACT

The paper examines the rise of quantum computing and its implications for cybersecurity. Quantum computers, unlike classical ones, use principles of quantum mechanics, such as superposition and entanglement, to solve complex problems exponentially faster. This poses a threat to existing cryptographic systems, especially those based on public-key encryption like RSA and ECC, which could be vulnerable to quantum algorithms such as Shor's algorithm. The document highlights the potential for quantum computing to break current encryption methods, putting sensitive data at risk from cybercriminals. To mitigate these risks, researchers are developing post-quantum cryptography and exploring quantum-resistant security measures, such as Quantum Key Distribution (QKD), to protect data in a future quantum-powered landscape. The paper emphasizes the urgency of updating encryption and cybersecurity strategies to prepare for the impending "quantum era."

Keywords: Quantum Computer, Cyber Security, Cryptography, Algorithm, Digital Signature, Post-Quantum Cryptography, Quantum Key Distribution, Cyber-Attack, Digital Infrastructure, Quantum Mechanism, Legacy Systems, Quantum Era.

ICMCTTAP072

Ethical Implications of AI in Neuroscience: Discussing the Challenges and Responsibilities of using Artificial Intelligence in Brain Disease Research

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ABSTRACT

The modern era of brain disease research has begun with the introduction of artificial intelligence (AI) into neuroscience, opening the door to previously unheard-of breakthroughs in the identification, management, and understanding of intricate neural disorders. However, there are also certain ethical difficulties with this integration. The ethical implications of utilising AI in neuroscience are looked at in this work, with particular attention dedicated to important concerns including data privacy, prejudice, and responsibility. Concerns regarding patient confidentiality and permission are raised by the sensitive nature of neurological data, especially in light of the possibility that AI systems will process enormous volumes of personal and medical data. The necessity for fair and open AI systems is further highlighted by the possibility that algorithmic prejudice in AI models could result in differences in treatment outcomes.Accountability for AI-driven decisions in a profession where incorrect diagnoses or treatments could have catastrophic consequences is another important topic covered. This study highlights the need for academics, developers, and legislators to carefully consider these ethical issues in order to guarantee that AI advancements in neuroscience put the welfare, accuracy, and equity of individuals first.

ICMCTTAP073

Enhancing Autonomous Vehicle Safety and Efficiency through Intelligent Mapping and Recommendations

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ABSTRACT

The rapid development of self-driving cars (AVs) creates numerous prospects for safer, more efficient transportation. This study looks into the possibilities for improved AV safety and operational efficacy using intelligent mapping, object detection, and tailored recommendation systems.This study proposes a unique way for improving autonomous vehicle navigation and user experience, using sensor fusion, adaptive route planning, real-time item detection, and crowdsourced map updates. The proposed technique opens the way for more intelligent and safe AV systems by improving obstacle avoidance, reducing travel times, and ensuring real-time system updates, according to trial data.

Keywords: Route Recommendation, Sensor Fusion, Object Detection, Autonomous Cars, Crowdsourcing, Machine Learning, Privacy, and Intelligent Mapping.

ICMCTTAP074

Assessing the Work-Life Balance of Polytechnic Teachers in Mysore: A District-Level Study

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ABSTRACT

Teachers are regarded as the foundational pillars of society, entrusted with the responsibility of shaping the future by educating and nurturing students. As the cornerstone of education, they bear the critical responsibility of guiding and nurturing students, who represent the future of any nation. The overall performance of the students is directly linked to the well-being of their staff, which is impacted by multiple elements such as work-life balance, job stress, and job satisfaction. These factors are crucial in determining the efficiency and success of educators. Addressing these factors is essential for fostering the students.

Keywords: Work Life Balance, Polytechnic, Teacher, Students' Academic Performance

ICMCTTAP075

A Study on Employee Satisfaction at Aster Medcity, Kochi, Kerala

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Abstract

One important measure of organizational health that is examined in this paper is employee satisfaction. The study delves into the complex relationship between cognitive (thoughts), affective (feelings), and behavioral (actions) components of satisfaction. Affective research stresses emotional well-being, whereas cognitive study focuses on how people perceive their jobs. We distinguish between the more specific work satisfaction and employee satisfaction, which includes broader organizational experiences. We stress the value of assessing employee satisfaction in order to obtain knowledge that can be used to enhance work conditions and performance in general. Establishing a positive work culture and identifying opportunities for growth are made possible by regular measurement.

Keywords: Employee Satisfaction, Work Environment, Job Satisfaction, Work Culture.

ICMCTTAP076

Predictive Design and Thermal Comfort Analysis in Car Cabins Using Multiple Linear Regression

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Abstract

Evaluation of thermal comfort in car cabin considered to be vital in automobile. Thermal comfort having physiological effect on passengers and drivers effecting driving, involving complexity influenced by heat exchange created by external thermal loads and internal heating and ventilation system. Present thesis aims to investigate the influence of flow and geometrical parameters on the thermal comfort of car cabin for two occupants. Parameters included in the study are velocity magnitude, vehicle speed, air temperature and surface temperature of human, number of vents, number of persons and eleven combinations of vent locations. Three dimensional analyses of thermal comfort is performed by varying different parameters. Generic cabin model is prepared in CATIA modeler and discretized in Hyper mesh. CFD tool STAR CCM+ is used to perform simulation. From the analyses it is found that the number of vents and vent locations variations having an effect on temperature surrounding the occupant form head to foot level. Number of persons adding into cabin represented selection good position for occupant. Increasing the inlet velocity increases heat transfer rate and vehicle speed hardly affect interior air temperature. Good fit of R2 value is obtained during multiple linear regression analysis for two passenger model compared to one passenger models which are fairly accurate. Remarkable analysis with air temperature, velocity around the occupant, surface temperature, number persons, and vent location combinations helped to obtain parameters relationships.

ICMCTTAP077

Future-Proof Networks: Nfv's Role in 5g and beyond

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ABSTRACT

With the rapid evolution of communication technologies and the global deployment of 5G, Network Functions Virtualization (NFV) has emerged as a transformative framework enabling adaptable, scalable, and cost-efficient networks. NFV decouples network functions from dedicated hardware, providing the flexibility needed to address the growing demands of ultra-reliable low-latency communications (URLLC), enhanced mobile broadband (eMBB), and massive machine-type communications(mmMTC) .These capabilities are essential for meeting 5G's requirements and preparing for the more complex challenges anticipated with 6G.

As the transition toward 6G unfolds, NFV's role must be evaluated again to ensure it can sustain the heightened demands for ultra-low latency, massive connectivity, and unprecedented network reliability. This study examines NFV's capacity to evolve alongside emerging network standards by exploring its capabilities, limitations, and potential enhancements. Through simulations, case studies, and performance metric analyses, this research identifies the critical factors influencing NFV's scalability, flexibility, and efficiency in diverse network contexts.

By addressing both current applications and future requirements, this study underscores the importance of advancing NFV's architecture to maintain its relevance. It highlights the need for innovations that enable seamless adaptation to more stringent network standards while preserving operational efficiency. These insights will contribute to the development of future-proof infrastructures, positioning NFV as a cornerstone for the successful deployment of next-generation networks, including 6G and beyond.

Keywords: **NFV**, **VIM**, **Network Slicing**, **MANO**, **NF**, **VNF**, **Ultra-Low Latency**

ICMCTTAP078

Nanotechnology in Cancer Treatment: Revolutionizing Targeted Therapy and Improving Patient Outcomes

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ABSTRACT

Cancer is among the high death causes worldwide, and therefore more innovative treatment approaches need to be discovered. The paper reviews the employment of nanotechnology in oncology with regard to creating targeted drug delivery systems with nanoparticles. The engineering of drug delivery using nanoparticles has enabled it to target chemotherapy drugs into tumor cells, thus significantly improving treatment effectiveness as well as minimizing systemic toxicity. Additionally, nanoscale imaging agents advanced early detection and real-time monitoring of tumors that help intervene timely. The interaction of nanotechnology with immunotherapy as well as radiation therapy is discussed against the backdrop of strategies for combination therapy that have implications on the therapy outcomes. It will be our focus to highlight and emphasize the potential of impacting paradigm shifts in cancer treatment with the help of nanotechnology and improved patient outcome.

Keywords: Cancer, Nanotechnology, Targeted Drug Delivery, Nanoparticles, Chemotherapy, Tumor Cells, Treatment Effectiveness, Early Detection, Immunotherapy, Radiation Therapy, Combination Therapy, Patient Outcome.

ICMCTTAP079

Comparative Study of Renewable Energy Sources: Solar VS Wind Energy

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ABSTRACT

With fossil fuel consumption contributing heavily to environmental degradation, the urgent need for alternative, cleaner energy sources has become a global priority. Among various renewable energy options, solar and wind energy have emerged as the most viable solutions due to their abundance and low environmental impact. This study aims to critically assess which of these renewable sources—solar or wind—is more efficient, cost-effective, and sustainable over the long term. Through a comparative analysis, this paper explores the unique advantages and limitations of each energy type, including factors such as energy output, environmental impact, and resource availability. Projections indicate that continued advancements in these technologies could lead to a substantial reduction in costs, potentially making them more accessible worldwide. If current growth trends persist, experts anticipate that wind energy alone may supply nearly one-third of global energy needs within the coming decades. This research provides valuable insights for policymakers, energy developers, and environmentalists, contributing to a more sustainable, renewable-powered future.

ICMCTTAP080

Autonomous Vehicle Technology

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ABSTRACT

As self-driving car technology has developed, so too has interest in the power sources for such vehicles. The debate is very heated over the advantages and disadvantages of using electric motors as opposed to traditional internal combustion engines. This paper highlights the differences between electric and internal combustion engine (ICE) engines, focusing mainly on efficiency, environmental impact, compatibility with autonomous systems, and outlooks within the autonomous vehicle industry. Analysis reveals which technology is most viable and sustainable for autonomous applications.

Keyword: Autonomous Vehicles, Electric Vehicles (EVs), Internal Combustion Engine (ICE), Self-Driving Technology, Powertrain Comparison, Battery Technology and Fuel Efficiency.

ICMCTTAP081

Startup Ecosystem: Factors Contributing To Entrepreneurial Success

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ABSTRACT

The startup ecosystem in Kerala has gained speed in recent years due to a unique confluence of government support, skilled talent, cultural factors, and sectoral opportunities. This study discusses the key elements of entrepreneurial success within this regional ecosystem, with particular focus on government initiatives such as KSUM, access to funding, talent availability, and infrastructure received. The study employs a mixed-method approach involving quantitative surveys and qualitative interviews with entrepreneurs, investors, and policymakers to assess the major drivers and barriers for startups in Kerala. The study found that while Kerala enjoys an enabling legislative environment, an educated workforce, and limited venture capital availability along with a generally risk-averse culture can impede speedy scaling up. Infrastructural issues such as technology parks, digital access, and growing prospects in strategic sectors like healthcare, tourism, and sustainable technology, all matching Kerala's socio-economic priorities, are also addressed. These implications indicate the need for smart planning to ameliorate financing, training, and infrastructure for the region being served. The study provides insights to stakeholders working towards building the startup ecosystem in Kerala and makes recommendations to improve and tap into the state-specific inherent advantages for continued expansion of the entrepreneurial archipelago.

Keywords: Kerala Startup Ecosystem, Entrepreneurial Success Factors, Government Support, Funding and Finance, Talent Development, Infrastructure and Technology, Cultural Influences.

ICMCTTAP082

Innovative Biomass-Based Nano-Adsorbent for Green CO2 Capture

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ABSTRACT

Abstract The rise in greenhouse gas emissions, particularly from hydro carbonaceous gases such as carbon dioxide (CO_2), poses a significant threat to the environment and public health. To mitigate these impacts, effective and sustainable carbon capture technologies are essential. This study focuses on the development of a novel and highly effective bio-adsorbent derived from renewable resource of Ficus benghalensis leaves, aimed at enhancing CO_2 capture. The bio-adsorbent was synthesized using Ficus benghalensis leaves as a precursor, which were doped with nitrogen in the presence of sodium bicarbonate ($NaHCO_3$) as a chemical activator. This strategic nitrogen doping significantly enhances the adsorbent's CO_2 capture capacity by increasing surface basicity and creating active sites that are highly favorable for selective CO_2 interaction. The doping was carried out using different ratios of the precursor and sodium bicarbonate and was activated by pyrolysis at 350°C to optimize the adsorbent's surface properties. The pyrolyzed material was then characterized using advanced techniques: Scanning Electron Microscopy (SEM) for examining surface morphology and porosity, Fourier Transform Infrared Spectroscopy (FTIR) for identifying the key functional groups and bonding structures, and Energy-Dispersive X-ray Spectroscopy (EDS) for determining elemental composition, specifically confirming nitrogen incorporation which is crucial for CO2 adsorption. The characterization studies showed that the optimal precursor-to-activator ratio of 0.5:1 demonstrated exceptional potential for highly efficient CO_2 capture, presenting a promising and sustainable solution to the pressing global challenge of mitigating climate change and improving air quality, with far reaching environmental and public health benefits. Further investigations are being carried out to characterize the adsorbent's adsorption efficiency and other performance characteristics. This innovative carbon capture technology holds immense promise for widespread deployment in industrial, power generation, and other sectors, contributing to a greener and more sustainable future. Keywords: CO2 adsorption, Ficus benghalensis leaves, Nitrogen doping, Bio-adsorbent, Green carbon capture technology.

ICMCTTAP083

Channel Estimation for mmWave Massive MIMO using Machine Learning for 5G and beyond

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ABSTRACT

The utilization of a lens antenna array in millimeter-wave massive multiple-input multiple-output (MIMO) systems can significantly reduce the number of radio frequency (RF) chains. However, due to the limited number of RF chains compared to the number of antennas, channel estimation poses a challenge. To address this issue, the sparsity of beamspace channels can be exploited, and the beamspace channel estimation can be formulated as a sparse signal recovery problem. This can be solved using the classical iterative algorithm, Approximate Message Passing (AMP), and its corresponding version, learned AMP (LAMP), which is realized by a Deep Neural Network (DNN). However, the existing schemes fail to achieve satisfactory estimation accuracy. To improve the channel estimation performance, we propose a prior-aided Multi-dimensional LAMP (MD-LAMP) based beamspace channel estimation scheme in this paper. Specifically, we utilize prior information that beamspace channel elements can be modeled by the shrinkage function to refine the AMP algorithm. We then develop a prior-aided proposed LAMP network by replacing the single dimension shrinkage function with a multi-dimensional function to estimate the beamspace channel more accurately. Simulation results using both the theoretical channel model and the ray-tracing based channel dataset demonstrate that the proposed LAMP network achieves better channel estimation accuracy than existing schemes.

Keywords: Massive MIMO, mmWave, Channel Estimation, RF

ICMCTTAP084

The Future of Natural Language Processing (NLP): Human-like Conversations

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ABSTRACT

Natural language processing (NLP) has revolutionized artificial intelligence by solving the challenge of enabling machines to understand, interpret, and reproduce human language. The importance of NLP lies in its applications in many areas, including medicine, education, business, and media. This study explores the basic concepts, methods, and developments in NLP and aims to provide a general introduction to the field. The study first outlines the history of NLP and traces its evolution from a policy-based approach to modern deep learning. Fundamental techniques such as tokenization, parsing, sentiment analysis, and language modeling are summarized to illustrate the diversity of available tools. Recent innovations, particularly Transformer-based architectures such as BERT and GPT, are important for demonstrating their performance in tasks such as translation, writing, and conversational AI. The paper concludes by highlighting the strengths and versatility of NLP and discussing current issues such as biases in language structure and the development of multilingualism. This summary provides valuable guidance for researchers and practitioners who wish to understand and contribute to the rapidly evolving nature of natural language processing.

Keywords: Artificial Intelligence; Language Models; Natural Language Processing; Sentiment Analysis; Transformer Architectures

ICMCTTAP085

Artificial Intelligence in Decomposing Organic FoodWaste: Techniques and Innovations

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ABSTRACT

AI can play a significant role in improving the process of decomposing organic food waste by optimizing various aspects of waste management. This design can provide the fertilizer form which the user want and it can save time , labour cost ect .The food waste are fastly decomposed by the bacteria, fungi and enzymes from the composting Additives (TeraGanix, Organic Compost Activator, MicrobeLift etc...) . The factors temperature, moisture, oxygen levels, microbial activity, C ratio, and aeration can significantly speed up the decomposition of organic food waste.For speed up the decomposition various AI sensors and factors providing systems are included .Smart heating systems are designed to automatically adjust the temperature based on real-time conditions, preferences, and user behavior .The heat pump in this smart heating system contain a sensor and it can cool and heat the environment.

Keywords: Composting Additive, AI Sensors, Smart Heating System

ICMCTTAP086

Cloud-Based Automated Weekly Report Generator for Educational Institutions

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ABSTRACT

In Educational Institutions, effective management requires time-to-time communication and efficient data handling. This paper discusses a cloud-based, automatic weekly report generator in the context of gathering and processing weekly reports and making them available to staff and students. Utilizing Amazon Web Services (AWS), the model integrates key services such as AWS Lambda, Amazon Simple Notification Service (SNS), Amazon Simple Storage Service (S3), and Amazon Event Bridge to automate report generation and distribution. The system fetches relevant data from Google Drive via their respective APIs and stores it in Amazon S3 for processing. The data is analyzed and formatted into weekly reports using AWS Lambda and then disseminated to the recipients through SNS notifications and Email alerts via Amazon Simple Email Services. This outcome provides an efficient, automated framework that reduces manual workload, enhances timely communication, and ensures data accuracy to meet the specific needs of educational institutions**.**

Keywords— Cloud Automation, Amazon Web Services, AWS Lambda, AWS SNS & SES, AWS IAM, AWS S3, AWS Event bridge, Report Generator, Notification System, AWS Step functions

ICMCTTAP087

Study of Tensile Strength of Opuntia Ficus Indica Fiber Reinforced Epoxy Composites

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ABSTRACT

In this present study, naturally available opuntia Ficus Indica (cactus) fiber is used, as reinforcing material. Cactus fiber belongs to the family cactaceae, which is reported to contain about 130 genera and nearly 1500 species. Composite materials are replacing standard Engineering metals and alloys for many applications. Since it is abundantly available in nature and majority of it is getting wasted without being used as reinforcement in engineering applications. In this work the mechanical properties cactus fiber reinforced with epoxy matrix. And also investigated the effect of fiber volume fraction on the tensile strength, flexural and compression strength, and hardness behaviour of cactus fiber was studied.

Cactus fiber reinforced with epoxy matrix composites is prepared with varied fiber lengths (8 mm and 10 mm) and for varied weight fraction (20%, 25% and 30%) of the fibers. The short cactus fibers are treated with 5% of Sodium Hydroxide (NaOH) solution. In the present work, the effect of the fiber treatment, fiber length and fiber loading on the mechanical properties are investigated. The results show that the Alkali Treated cactus fiber reinforced composites have better mechanical properties than untreated composites. The 10 mm fiber length reinforced composite shown improved mechanical properties than 5 mm fiber length reinforced composite. Increase in mechanical properties is seen when the fiber content in the composite is increased from 20% to 25% and 25% to 30%. The 30% weight of the cactus fiber reinforced composite has shown higher values of mechanical properties.

Keywords: Composite Materials; Epoxy Resin; NAOH solution; Short Cactus Fiber

ICMCTTAP088

The Transformative Power of AI in Football and beyond

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ABSTRACT

Generative Artificial Intelligence(GenAI) has been one of the hot topic in football world and it is changing the way teams scout players, analyze performance, make tactical choices and engage with fans. Enter prompt generators such as GPT and DALL-E, who provide instant synthetic data – game changers for teams/coaches and their fans. GenAI is different from the AI that we have been using all along—it does not fixate on analyzing only available data but rather facilitates creation of new content or builds predictive scenarios, a much-needed competitive advantage in the world of football. With GenAI transforming data into actionable insights, clubs can evaluate player potential more accurately, adapt their plays during matches and create more tailored experiences for the fans. The paper investigates multiple football use cases with respect to GenAI, including performance analysis, simulations of tactical scenarios and customized content for supporting audience engagement. Player Scouting: GenAI generated data is making Player Scouting more accurate & human-like- this means the process of identifying talent potential and game readiness could be done with both accuracy. Building on that in-depth understanding of individuals, GenAI powers personalized content experiences — recap stories and video highlights driven by how what resonates with fan's unique preference profiles. Especially with AR and virtual reality; this leads to more fan satisfaction when it comes to immersive experience. While the benefits of GenAI in football are abundant, it raises ethical concerns about the data and its authenticity in generated content. Although GenAI would: 1) help generate the tools that make an impact in how things will be done differently, it all must be managed with accountability, context and transparency in terms of context of content generated. Overall GenAI has been a great enhancer to many aspects of the game, from scouting players and fan engagement. Future research must also explore sports where GenAI could be deployed to capitalize on real-time game modifications. KEYWORDS: Performance Analysis in Football, Tactical Simulations with GenAI, Personalized Content for Fans, Predictive Analytics in Football, AI in Talent Identification, Real-Time Data in Football

ICMCTTAP089

Strategic Management: Case Study Polaris Industries

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ABSTRACT

This presentation examines the strategic management practices of Polaris Industries, a leading manufacturer of outdoor recreational vehicles. By analyzing the company's approach to market positioning, product innovation, and competitive advantage, we explore how Polaris has successfully navigated challenges in the dynamic landscape of the powersports industry. The study highlights key strategic initiatives, including diversification into electric vehicles and the enhancement of customer experience through technology integration. Furthermore, we assess the impact of external factors such as economic trends and regulatory changes on Polaris's strategic decisions. Through this case study, we aim to provide insights into effective strategic management frameworks that can be applied across various industries, emphasizing the importance of adaptability and foresight in achieving sustainable growth.

Keywords: Polaris Industries, Power Sports Industries, Product Innovation, Strategic Management

ICMCTTAP090

Role of Financial Literacy on Risk Management in Financial Retirement Planning

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ABSTRACT

In the framework of retirement planning, this conceptual study investigates the connection between risk management and financial literacy. Acquiring the knowledge and abilities required to make well-informed retirement planning decisions is largely dependent on financial literacy. It draws attention to the ways that financial literacy affects people's capacity to recognise, evaluate, and reduce retirement-related financial risks. This paper summarises the theoretical foundations of retirement planning, investigates the influence on risk perception and decision-making, and suggests strategies for improving risk management through financial literacy to enhance retirement outcomes by synthesising the body of available evidence.

Keywords: Financial Literacy, Retirement Planning, Risk Management, Retirement Theories

ICMCTTAP091

5G Technology's Effect on IT Infrastructure

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ABSTRACT

5G technology will allow for faster data transfer speeds, lower latency, and greater connectivity, it has the potential to completely transform the IT infrastructure landscape. It is becoming more and more important to evaluate how 5G networks will affect IT infrastructure, such as networking, storage, cloud computing, and data management, as businesses and sectors all over the world start implementing them. This study examines the possible advantages and difficulties of 5G as it relates to IT infrastructure. Through a review of case studies, industry reports, and current literature, this study highlights the major changes that businesses and IT professionals should anticipate as 5G becomes widely used. Additionally, the study looks into how 5G would encourage innovation in cutting-edge technology like edge computing, artificial intelligence (AI), and the Internet of Things (IoT). According to the research, 5G presents new challenges in network security, data management, and system integration even if it also presents substantial performance improvement prospects.

Keywords: 5G Technology, IT Infrastructure, Networking, Cloud Computing, Latency, Internet Of Things (IoT), Edge Computing, Artificial Intelligence (AI), Data Management, System Integration.

ICMCTTAP092

Melanoma Skin Cancer Prediction Using Machine Learning Algorithm

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ABSTRACT

Melanoma, the deadliest form of skin cancer, is a major public health concern around the world. Improving patient outcomes and prognosis requires early identification. This work suggests a predictive strategy for the identification of melanoma skin cancer by utilizing developments in machine learning algorithms. The suggested model makes use of a broad dataset that includes dermatoscopic, clinical, and demographic characteristics gathered from multiple sources. To determine which qualities are most informative for categorization, feature selection approaches are used. To effectively predict the malignancy of melanoma, a number of machine learning algorithms are taught and assessed, such as Support Vector Machines (SVM), Random Forest, and Convolutional Neural Networks (CNN). The efficacy of the system is evaluated using performance indicators like accuracy, sensitivity, specificity, and area under the receiver operating characteristic curve (AUC-ROC). By giving doctors a trustworthy tool for early melanoma identification, the created system hopes to improve patient outcomes and enable prompt intervention.

Keywords: Melanoma, Skin Cancer, Machine Learning, Prediction, Algorithm, Classification, Dermatoscopic Features, Early Detection, Support Vector Machines, Random Forest, Convolutional Neural Networks, Performance Evaluation, Sensitivity, Specificity, AUC-ROC, Clinical Decision Support.

ICMCTTAP093

Automated Detection of Diabetic Retinopathy: A Comparative study of Machine Learning Algorithms

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ABSTRACT

Diabetic Retinopathy (DR) is a disorder of the eye and refers to the damage to the blood vessels of the retina as a result of high blood sugar levels in the body. This condition is the most common cause of blindness among working-age people. Vision impairment may result from DR and is regarded as a serious diabetes complication all over the globe. This paper evaluates the efficacy of two deep learning models, DenseNet-121 and ResNet-50, which have a widespread application in performing automated analysis of retinal images and detecting the presence of DR. DenseNet utilizes dense connectivity in order to efficiently reuse features, while ResNet uses residual connections to enhance the training of deep networks. The experiments were conducted on both models using an open-sourced DR dataset and their performance was evaluated with respect to accuracy, sensitivity, specificity and computational efficiency. The results of the analysis suggest that DenseNet is superior to ResNet in terms of accuracy and parameter efficiency, and therefore it is the best method in dealing with DR in a clinical setting. This information may assist the physicians in determining the appropriate models which should be employed for diabetic retinopathy detection in clinics.

Keywords: Diabetic Retinopathy (DR), Retinal Fundus Image, Deep Learning, Feature Reuse, Residual Connections

Conversational AI for Mental Health Support: A Deep Learning Approach

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ABSTRACT

Conversational AI powered by deep learning It presents a promising approach to scalable mental health support. This article examines the application of advanced natural language processing (NLP) and the autopilot paradigm to enable empathetic and context-sensitive conversations in mental health care. By detecting emotional signals and providing real-time feedback. These systems can provide immediate support to those who are hesitant to seek professional help. Our study highlights the role of conversational AI as a complement to traditional mental health services. They provide accessible and unadulterated help outside of the healthcare setting. Key challenges include privacy. cultural sensitivity and accuracy in responding It was resolved with a human-in-the-loop approach. Enabling professionals to monitor AI interactions, this work contributes to the broader discourse on AI for social good. The potential of conversational AI-powered deep learning to provide compassionate and accessible mental health support.

Keywords: Conversational AI, Mental Health Support, Natural Language Processing (NLP), Human-in-the-loop

ICMCTTAP095

”AI in Healthcare: Revolutionizing Diagnostics and Cancer Treatment"

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ABSTRACT

Artificial Intelligence (AI) is revolutionizing healthcare, mainly in diagnostics and most cancers treatment, via improving accuracy, performance, and personalized care. Advanced gadget learning algorithms examine medical records, such as imaging scans, pathology slides, and genetic facts, to come across illnesses at in advance stages and predict patient outcomes with extraordinary precision. AI-pushed gear in radiology and pathology aid in figuring out tumors, assessing their aggressiveness, and suggesting potential remedy options. In oncology, AI models are accelerating drug discovery and enabling precision medicinal drug by means of tailoring remedies to person genetic profiles. By integrating AI with scientific workflows, healthcare structures are overcoming diagnostic demanding situations, decreasing human errors, and optimizing assets. While AI affords transformative benefits, it additionally brings moral and regulatory challenges that want to be addressed to ensure secure and effective implementation. This paper explores the modern packages of AI in diagnostics and most cancers remedy, its effect on affected person care, and the destiny path of AI in healthcare innovation.

Keywords - Here Are Five Keywords from the Provided Text: Artificial Intelligence, Machine Learning, Deep Learning, Diagnostics, Cancer Treatment, Healthcare Innovation

ICMCTTAP096

Multi-Model Obstacle Detection and Navigation Using Deep Learning

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ABSTRACT

This research explores the development of a multi-model obstacle detection and navigation system utilizing deep learning techniques to enhance the mobility of visually impaired people. The proposed system integrates various deep learning architectures, including a modified SSD Mobile Net, to achieve real-time obstacle detection and distance estimation. By employing a dataset comprising both indoor and outdoor environments, the system leverages neural architecture search to optimize the object detection framework, ensuring efficient processing on embedded devices. A key innovation of this approach is the incorporation of multi-sensor data, which enhances the robustness and accuracy of obstacle detection. The system utilizes advanced convolutional neural networks to process inputs from various sensors, including time-of-flight sensors, enabling it to identify obstacles with high precision and providing audio to user. The performance metrics indicate that the model achieves a mean average precision exceeding 90%, demonstrating significant improvements in detection speed and accuracy compared to traditional methods.

Keywords: Visually Impaired Population, Object Detection and Identification, Feedback, Assistance, Obstacle Avoidance.

ICMCTTAP097

Review on AI used to predict Alzheimer's disease

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ABSTRACT

The early detection of Alzheimer's disease (AD) is critical for timely intervention and management. This review paper explores the innovative applications of artificial intelligence (AI) in predicting Alzheimer's disease through the analysis of multimodal data, including speech pattern analysis, cognitive tests, MRI scans, electronic health records, and biomarkers. Recent studies have demonstrated that AI models can effectively analyze speech patterns to predict cognitive decline, achieving accuracies of up to 78.5% in forecasting the progression from mild cognitive impairment to Alzheimer's. Additionally, the integration of MRI scans enhances diagnostic precision by providing structural insights into brain changes associated with AD. Cognitive assessments and electronic health records further enrich the dataset, allowing for a comprehensive evaluation of risk factors and progression patterns. The synthesis of these multimodal inputs showcases AI's potential to revolutionize early diagnosis and monitoring of Alzheimer's disease, paving the way for more accessible and non-invasive screening methods. This paper aims to highlight the advancements in AI methodologies and their implications for clinical practice in Alzheimer's disease prediction and management.

Keywords: Alzheimer's Disease (AD), Artificial Intelligence (AI), Speech Pattern Analysis, Cognitive Tests, MRI Scans, Electronic Health Records (EHR), Biomarkers, Machine Learning, Multimodal Data, Predictive Analytics

ICMCTTAP098

Development of Smart Helment Detection System for Motorcycle Rider

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ABSTRACT

Street wellbeing is a central issue, especially with issues like cap resistance and liquor utilization, the two of which essentially increment the gamble of mishaps and fatalities. Head wounds, frequently brought about by not wearing protective caps, are a main source of death and handicap in street occurrences. Moreover, liquor utilization weakens basic mental capabilities, for example, independent direction and response time, which are fundamental for safe driving. This issue is particularly serious in high-traffic regions like India, where plastered driving can make mishaps significantly more hazardous. To handle these issues, we propose a brilliant protective cap framework that incorporates both a gas sensor and a head protector sensor to guarantee security. The gas sensor identifies the driver's liquor levels, while the head protector sensor checks whether the driver is wearing a cap. On the off chance that the cap isn't worn, or on the other hand assuming liquor is identified in the driver's framework, the vehicle's key will be locked, forestalling start. This action guarantees that drivers can't work their vehicle under perilous circumstances. Moreover, on the off chance that liquor is recognized after the key is opened, the framework will send a GSM message to the driver's family, cautioning them of the risky condition. By coordinating innovation with head protector consistence and liquor location, this shrewd cap framework means to altogether decrease mishap rates, advance dependable driving, and upgrade generally street security. The framework's constant correspondence and observing capacities assume an essential part in further developing driver conduct and decreasing the gamble of lethal mishaps out and about.

Keywords: Gas Sensor, GSM Message, Resistance and Liquor Levels

ICMCTTAP099

Earlier Cancer and Tumor Detection Using Deep Learning Techniques

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ABSTRACT

Early detection of cancer greatly enhances patient prognosis by facilitating prompt treatment. This paper presents an automated system for cancer detection, integrating OpenCV for image preprocessing and deep learning architectures, including VGG16 and ResNet50, for accurate classification. Enhanced reliability is achieved through error detection methods such as Isolation Forest and One-Class SVM, effectively minimizing false positives and negatives. The system attains an accuracy exceeding 95% in distinguishing between cancerous and non-cancerous tissue samples. Utilizing transfer learning and preprocessing techniques like Gaussian blurring and histogram equalization, the system improves image quality and boosts classification accuracy. Designed to be scalable and adaptable, the system shows promise for integration into real-time clinical applications,

Keywords: Cancer Detection, Deep Learning, OpenCV, Histopathology, CNN, Transfer Learning, Error Detection, Image Preprocessing, VGG16, ResNet50.

ICMCTTAP100

IoT Based Monitoring Brain‘S “MTCCH“ Functions And Activities

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ABSTRACT

IOT-based system for continuous monitoring of neural activity across critical brain regions: the medulla oblongata, cerebellum, cerebrum, thalamus, and hypothalamus. These regions are central to functions such as autonomic control, motor coordination, sensory processing, emotional regulation, and homeostasis. Leveraging a network of IOT-enabled biosensors, including EEG and fMRI-compatible devices, the system collects and transmits real-time neural data to a cloud platform, where machine learning algorithms analyze patterns and detect irregularities. And also these type of mechanism which help in the field of law and revealing the truth of the crime cases for example ; A person hit someone's back portion of the head and the person get unconscious due to the lack of oxygen . Because the medulla oblongata of that person got damaged. We can find the defendant with the help of the device.

Keywords: Biosensors, EEG, fMRI

ICMCTTAP101

Quantum Machine Learning Techniques for Network Defense: A Comparative Study of Quantum vs. Classical Approaches

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ABSTRACT

With the potential for quantum computing to completely transform cybersecurity, quantum machine learning is becoming a ground-breaking technology. Cyber-attacks have been successfully countered by traditional network defence systems, which mostly use conventional machine learning (ML) techniques. However, the growing complexity of assaults and the exponential expansion of network data reveal the shortcomings of traditional methods, especially with regard to speed and scalability. By utilising quantum algorithms like Quantum Support Vector Machines (QSVM), Quantum Neural Networks (QNN), and Variational Quantum Circuits (VQC), Quantum Machine Learning (QML) presents a viable substitute. These methods are especially well-suited for real-time network defence scenarios since they show the capacity to handle high-dimensional data, identify complex patterns, and increase computational efficiency.

In this research, the effectiveness of QML techniques in network defence is thoroughly examined and contrasted with that of traditional machine learning techniques. The study emphasises how QML may surpass conventional models in terms of accuracy, scalability, and resilience against sophisticated threats by concentrating on use cases like intrusion detection, malware analysis, and anomaly detection. The necessity for hybrid quantum-classical models and the present constraints of quantum hardware are among the difficulties that are discussed in the study. This study highlights the revolutionary potential of QML in strengthening network defence mechanisms and identifies crucial areas for further research, paving the road for a secure digital future by combining theoretical ideas with experimental discoveries.

Keywords: Quantum Machine Learning, Network Defense, Classical Machine Learning

Data Science in the Field of Sports and Athletic Performance

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ABSTRACT

Data science has been an integral part of many industries for many years and sports are no exception. Integrating advanced data analytics machine learning and artificial intelligence's integration into sports and sports performance has changed the way athletes train, compete, and recover with a focus on functionality. From professional athletes to recreational enthusiasts We will review various types of information. gathered in sports including performance indicators (e.g. speed, endurance, power), biometric data (e.g. heart rate muscle fatigue) and environmental information (such as weather, game conditions) through use. of predictive analytics and real-time data collection to adjust strategy Prevent injuries Case studies of leading sports teams Wearable technology and sports science research that can push the limits of performance. Emphasis will be placed on the practical application of data science to improve Individual and team work... The symposium will address ethical considerations and challenges related to data collection. privacy and the potential for information overload. as well as discuss the future of data science in sports. including innovations in AI-powered analytics, virtual reality training and injury prevention technology

At the end of the seminar Participants will gain a deeper understanding of how data science is transforming the world of sports and sports performance.

By providing new opportunities for athletes, coaches and organizations to increase competitive advantage and achieve maximum performance..

ICMCTTAP103

A Comparative Review of Dynamic Analysis Techniques for Elevated Water Tanks: Time History Method versus Response Spectrum Method

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ABSTRACT

This paper presents a comprehensive review of dynamic analysis techniques for elevated water tanks, with a specific focus on comparing the Time History Method (THM) and Response Spectrum Method (RSM). Drawing upon a wide range of literature sources, the review synthesizes existing research efforts dedicated to understanding structural behavior, seismic performance, bracing configurations, material considerations, and soil-structure interaction in the context of elevated water tanks. Despite the extensive body of literature in this field, a notable research gap exists in the systematic comparison of dynamic analysis techniques, particularly between THM and RSM. This paper highlights the need for a comparative review to evaluate the advantages, limitations, and applicability of THM and RSM for dynamic analysis of elevated water tanks, providing valuable guidance for engineers and researchers in selecting the most suitable method based on project requirements and constraints.

Keywords: Water Tank, Time History Analysis, Response Spectrum Analysis, Dynamic Analysis, RCC, etc.

ICMCTTAP104

A Study on the Interrelationship between Electrode Heating and Electrochemical Machining Performance Experimental and Theoretical Insights

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ABSTRACT

It investigates the interrelationship between electrode heating and the performance of electrochemical machining through both experimental and theoretical approaches. Electrochemical machining is a widely used non-traditional manufacturing process, characterized by its ability to achieve intricate shapes and fine surface finishes. However, the impact of electrode temperature on machining efficiency and accuracy remains underexplored. We conducted a series of experiments to measure temperature variations in electrodes during Electrochemical machining, correlating these measurements with key performance metrics, such as material removal rate, surface roughness, and dimensional accuracy. Simultaneously, a theoretical model was developed to predict the effects of thermal dynamics on electrochemical reactions at the electrode interface. The findings reveal a complex relationship between electrode heating and Electrochemical machining performance, indicating that optimal temperature ranges can enhance machining efficiency, while excessive heating leads to undesirable effects such as increased tool wear and surface degradation. This study provides valuable insights for optimizing Electrochemical machining processes by balancing thermal management with electrochemical performance, thereby contributing to advancements in precision machining techniques.

Keywords: Electrochemical Machining, Electrode, Machining, Tool Wear, Thermal Dynamics

ICMCTTAP105

An Innovative and Intelligent IoT-Driven Smart Irrigation System for Optimizing Precious Farming Practices

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ABSTRACT

The world is facing an increasing environmental crisis due to rapid urbanization, which results in the destruction of numerous plants that play a crucial role in maintaining the balance of oxygen and carbon dioxide in the atmosphere. This imbalance negatively impacts air quality, contributes to climate change, and poses a threat to both plant and human life. Additionally, inadequate plant care, such as irregular watering and insufficient monitoring of soil conditions, exacerbates the problem. Plants often die from neglect or improper conditions, further depleting the planet's green cover. To counteract these issues, it is essential to develop a solution that ensures the continuous monitoring and proper maintenance of plants. This project aims to address these problems through the development of an Arduino-based smart irrigation and land monitoring system. The system is designed to monitor key environmental factors that are critical for plant growth, such as soil moisture, pH levels, temperature, and humidity. By integrating various sensors, the system can detect changes in these parameters and respond accordingly to ensure the plant receives optimal care. A soil moisture sensor continuously checks the moisture content in the soil, and when it falls below a certain threshold, the system automatically triggers a water pump using a driver relay to irrigate the plants. The pH sensor monitors the soil's acidity or alkalinity, which is crucial for maintaining healthy soil conditions, while the DHT11 sensor records the temperature and humidity levels, ensuring the environment remains suitable for plant growth.

Keywords: Environmental Crisis, Rapid Urbanization, PH Sensor, Soil Moisture Sensor, Sensor Integration, Soil Acidity.

ICMCTTAP106

Innovative Learning Using Artificial Intelligence and Augmented Reality

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ABSTRACT

Nowadays, a lot of students prefer to learn visually and are not as interested in studying printed materials or online courses with textual content. Animations can be useful in multimedia resources to keep these pupils interested while assisting additionally improving the education of the students experience by breaking down challenging ideas through visual methods as opposed to the conventional method of presentation that is text-based. The significance of animations would be produced much more, particularly when the distance learning is a style of instruction where students can to obtain in-depth knowledge only by using the course materials comprehension. We talk about the creation and transmission of animations in this paper. It was necessary to use a fresh and creative teaching strategy to help the students in these courses understand these foreign subjects. A more effective method of teaching the topics to the pupils was thought to be through animations with multimedia features. In this article, we examine and assess students' overall performance following the inclusion of animations in the curriculum.

Keywords - Printed Materials, Animations, Multimedia Features.

ICMCTTAP107

Explainable AI in Healthcare

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ABSTRACT

The entry of artificial intelligence into health care systems brings unprecedented advances in diagnosing, personalized treatment, and predictive analytics. Many of these AI models, especially the deep-learning algorithms, have been referred to as "black boxes" and raise gigantic questions about trust, transparency, and reliability in clinical settings. Therefore, explainable AI answers the challenges by drawing to the fore methodologies that make AI models more interpretable, thereby making them more accepted and usable in the fraternity of health. It engages with XAI in healthcare by scrutinizing various aspects of feature importance analysis, architectures of the interpretable model, and visual explication of decisions driven by AI.

The case studies regarding applications of XAI in the fields of radiology, disease prediction, and personalized medicine illustrate how this technology has its own importance even in terms of improving the precision of diagnosis and clinician-patient communication. We are answerable to ethics, such as how to explain respect for the trust of patients, legalities in deploying XAI in healthcare, and further directions to be taken so that XAI does not lag behind the timeline of AI innovation. Our results repeat again that XAI indeed is the much-needed solution to be technically suitable and necessary for ensuring the responsible adoption of AI within healthcare systems to empower clinicians using not only accurate but also transparent, understandable, and aligned AI systems in clinical best practice. In conclusion, this paper concludes by highlighting explainable AI as one of the key enablers toward safe, effective, and widely accepted AI applications in health care.

Keywords: Clinical decision-making; Diagnostics; Disease prediction; Explainable AI; Healthcare;

Database and Modern Database Technology

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ABSTRACT

This paper articulates a holistic approach to study the future of database development as well as the interaction between AI and modern database technologies. Overall architecture is data-centric so that quality of data, security, and governance are enhanced. It addresses the scalability and cost-effectiveness of cloud-native versus serverless database solutions and introduces AI-powered approaches towards the management of databases like predictive maintenance, self-healing, and XAI toward transparency and accountability.

Methodology: Real-time Data Analysis Real-time data analysis involving new tools such as Apache Kafka and Spark Streaming coupled with emerging AI techniques - GNNs, NLP, reinforcement learning, transfer learning, and quantum computing. Comparative analysis with Google Cloud AI Platform along with a comparison of its AI tools and platforms and even against another tool like Apache Cassandra that is used to implement such real-world applications, studying their efficiency in it.

Finally, the research suggests strategies that will help in future-proofing database management with robust data governance, continuous learning, stakeholder collaboration, and adaptability to evolving technologies. This methodology is designed to draw on theoretical research, experimental validation, and practical case studies to provide a structured framework in which AI can be leveraged to drive innovation and sustainability in database systems.

Keywords: AI-Powered Databases; Data Governance; Real-Time Data Analysis; Cloud-Native Solutions; Future-Proofing Technologies;

ICMCTTAP109

Advanced Analysis of Concrete Compressive Strength: Combining NDT Techniques with Digital Image Processing

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ABSTRACT

Concrete is a fundamental material in civil engineering, widely used for its durability, versatility, and load-bearing capacity in infrastructure and building projects. The compressive strength of concrete is crucial as it directly impacts structural integrity, longevity, and safety. This study investigates the compressive strength of M50 grade concrete through a comprehensive approach that combines non-destructive and destructive testing techniques. Methods employed include the Rebound Hammer (RBH) test, Ultrasonic Pulse Velocity (UPV) test, Digital Image Processing (DIP), and conventional destructive testing. The integration of these techniques aims to provide accurate and reliable estimates of compressive strength, critical for evaluating concrete quality in structural applications. Specifically, this research compares the non-destructive techniques (RBH, SonReb Method, and DIP) against standard destructive testing results across different curing ages. Findings reveal a strong correlation between DIP and destructive testing, suggesting that image-based processing can serve as an effective non-destructive alternative in compressive strength assessment. The comprehensive analysis of M50 grade concrete presented in this study offers valuable insights for researchers and practitioners seeking enhanced, non-invasive methods for concrete strength evaluation.

Keywords: Concrete, Digital Image Processing Method, Rebound Hammer Test, SonReb Method, Ultrasonic Pulse Velocity.

ICMCTTAP110

Sustainable Engineering Solutions for Urban Environments: Innovations, Challenges, and Future Directions

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ABSTRACT

Urbanization presents significant environmental challenges that require sustainable and innovative engineering solutions. This article explores the critical need for sustainable engineering practices in urban environments, focusing on advances in construction, energy, waste management, and green infrastructure.We look at the most advanced construction technologies, such as modular and prefabricated building systems, which reduce waste and energy consumption. In energy, we look at the integration of renewable energy sources, energy-efficient building designs, and smart grid technologies to minimize carbon footprints.Sustainable waste management strategies, including recycling, composting, and waste-to-energy, are emphasized to mitigate the environmental impacts of waste. It also addresses the role of green infrastructure, such as green roofs, green walls and urban parks, in improving air quality, reducing stormwater and improving urban biodiversity.By addressing these key areas, sustainable engineering can contribute to resilient, environmentally friendly and equitable urban environments. However, challenges such as high initial costs, political barriers and technological limitations persist. Future research and policy initiatives should focus on addressing these barriers and promote the widespread adoption of sustainable engineering solutions.

Keywords: Smart Grid Technologies, Green Infrastructure, Green Walls, Resilient Urban Environments

ICMCTTAP111

EDUSYNC – Smart Classroom Management System

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ABSTRACT

EDUSYNC is a Smart Classroom Management System (SCMS) that utilizes modern technologies like React.js, Node.js, MongoDB, and Large Language Models (LLM) to optimize classroom administration and improve the educational experience. This application, which combines Learning Management System (LMS) and Content Management System (CMS) features, actively engages students with interactive quizzes in programming languages such as Java, Python, and C++. It facilitates interaction between mentors and mentees, empowering teachers to enter grades, approve duty requests, and oversee student absences. Students can monitor their academic progress through visual representations like bar and pie charts and create professional resumes with an integrated resume-building feature. Parents can track their children's academic performance and stay informed about attendance and leave. Furthermore, the platform includes chatbots to help students with their educational questions. Planned future enhancements include a mobile application for better access and functionality.

Keywords: Smart Classroom Management System (SCMS), Learning Management System (LMS), Interactive Quizzes, Academic Progress Tracking, Chatbots

ICMCTTAP112

Implementation of Self-Organized Operational Neural Networks for R-Peak Detection in Holter ECGs

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ABSTRACT

While a number of R-peak detectors have been created, their performance may be significantly impacted when handling noisy, low-quality data from mobile ECG sensors, such as Holter monitors. Even though deep 1-D convolutional neural networks (CNNs) have recently produced state-of-the-art results, their high complexity and need for specialized parallel hardware for real-time processing can limit performance, particularly with compact network configurations. Because CNNs only use one linear neuron model, their learning capacity is limited, leading to this constraint. To tackle this problem, operational neural networks (ONNs) integrate neurons with several types of nonlinear operators in a network architecture that is heterogeneous. The goal of this work is to improve R-peak detection performance in 1-D Self-Organized ONNs (Self-ONNs) while maintaining computing efficiency through the use of generative neurons. Because each generating neuron in a 1-D Self-ONN learns its ideal configuration through adaptation, the Self-Organizing feature eliminates the need for human operator set selection. Our experimental results, utilizing the MIT-BIH Arrhythmia dataset, which contains over a million ECG beats, reveal that 1-D Self-ONNs outperform state-of-the-art deep CNNs in terms of both performance and computational economy.

Keywords: R-Peak Detection, Holter Monitors, CNNs, ONNs, and MIT-BIH Arrhythmia Dataset.

ICMCTTAP113

Exploring Various Approaches for Secure Data Storage in Cloud Environments

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ABSTRACT

Cloud computing has modified the way the data is stored and accessed . Even if the shared nature of cloud environments may leads to security challenges. This paper provides a comprehensive overview of various strategies used and using for securing data at rest in the cloud environment. This paper delve into the core ideas of data encryption , access control mechanism and data integrity, studying there strengths, drawbacks and accessibility to different cloud aspects. This paper also deliberate emerging trends like homomorphic encryption and block-chain based solutions, which offer innovative approaches for enhancing data privacy and security. By analyzing this approaches in depth, this paper identify the optimal strategies for protecting sensitive data stored in the cloud.

Keywords: Cloud Computing, Data security, Encryption,Access control

A POI Recommendation System Using Differential Privacy

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ABSTRACT

Points of interest (POI) recommendation algorithms are essential to geographically focused services. They assist consumers in finding new places based on their previous history and their interests & allow advertisers to target their campaigns effectively. It offers a responsible way to use location data for targeted marketing without breaching user privacy. However, traditional POI systems rely a lot on users' raw check-in histories. This brings up big worries about privacy. For protecting user privacy, we proposed the Local differential privacy (LDP) mechanism based on matrix factorization. LDP perturbates the data by introducing noise into consumers' data on their end before transmitting it to the server whereas in Differential privacy based on the Gaussian mechanism and uniform mechanism it perturbates data after being sent to the server by introducing noise to data. We have used a world Gowalla dataset based on New York City check-in history.

Keywords: Point of Interest, Matrix Factorization, Gaussian Mechanism, Uniform Mechanism, Local Differential Confidentiality

ICMCTTAP115

Cybercrime in the Age of AI: Emerging Threats and Prevention

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ABSTRACT

Artificial intelligence (AI) was introduced as a new vulnerabilities in the realm of cyber security. Revolutionize various sectors. With the rise of AI-powered tools and systems, it has opened the door for more cybercrimes including phishing attacks, deep fake fraud, automated exploitation of security etc. The emerging threats leverage AI's capabilities to enhance the speed, scale, and precision of cyber-attacks. This paper leads into the landscape of cybercrime in the age of AI, examining the various forms of AI-assisted cyber threats and their consequences for individuals, organizations. This paper also emphasizes on current and potential prevention strategies, including AI-based security solutions, ethical considerations in AI development, and the importance of global cooperation. As AI continues to advance measures, it will be crucial in safeguarding against its misuse and ensuring the security and privacy of digital environments.

ICMCTTAP116

Automated Web Scraping Of Comics and Anime Platforms for Content Aggregation

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ABSTRACT

This paper discusses the development and application of Web Scraping Automation in aggregating and combining data on manga and anime available on online platforms. The exponential quantity of digital information generated within a single day, whether for fandom or research, prevents them from receiving accurate, up-to-date information relating to matters like release dates or times, running chapters of manga, episodes of anime, or critique reviews. One efficient way of automation in the retrieval of these data is through web scraping, not as a method for extracting information but as a technique that gives access to extensive databases for purposes of content analysis and discovery, aside from real-time updates. This automated web-scraping goes about handling manga and anime content search and arrangement by removing the required handling of manual data collection. Through this automated process, the system would become a depository that researchers, content curators, and anime enthusiasts can draw from, giving it the most contemporary well-organized representation of data.

Keywords: Web Scraping, Automation, Databases

ICMCTTAP117

Optimizing Hyperparameters: Techniques for Improving Machine Learning Models

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ABSTRACT

A key component of improving machine learning models' precision, effectiveness, and generalizability is hyperparameter tuning. By lowering mistakes and better adjusting models to new data, choosing the right hyperparameters may greatly enhance model performance. Popular hyperparameter tuning methods such as grid search, random search, Bayesian optimization, gradient-based methods, and population-based approaches are examined in this study. Each method has different benefits and difficulties in striking a balance between computing efficiency and exploration.We examine how different approaches affect model accuracy, training duration, and resource usage by contrasting them on a variety of machine learning and deep learning tasks. We also look at new developments that try to streamline and speed up the optimization process, such as transfer learning and automated machine learning (AutoML). This paper offers a thorough review of hyperparameter optimization strategies through case studies and experimental results, providing practitioners with useful insights to assist them select appropriate methods for various models and datasets. Our results highlight how crucial hyperparameter tweaking is as a first step in creating reliable, effective machine learning systems.

Keywords: Hyperparameter Optimization, Machine Learning Models, Grid Search, Random Search, Bayesian Optimization, Gradient-Based Optimization, Evolutionary Algorithms, Automl (Automated Machine Learning), Model Performance, Deep Learnings.

ICMCTTAP118

Garbage Classification: A Deep Learning Perspective

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ABSTRACT

Garbage Classification using deep learning focuses on techniques to automate and improve the sorting of waste materials. The objective is to enhance recycling processes and promote environmental sustainability by accurately categorizing waste into six types: glass, paper, cloth, trash, cardboard, and plastic. The study implements advanced convolutional neural networks (CNNs) to analyze and classify images of garbage, automating a task that is traditionally manual and labor-intensive.To achieve this, several deep learning models were used, including MobileNet, NASNet, LeNet, Inception, and DenseNet. These models were trained on a carefully curated dataset to ensure balanced representation across all waste categories, allowing them to extract complex features from the images and make precise classifications. Each model was evaluated based on its performance, with NASNet delivering the highest accuracy, making it the most suitable for real-world applications where resources might be limited, such as mobile or edge devices.The results demonstrate that NASNet is the most effective algorithm for garbage classification, outperforming the other models in terms of accuracy. By automating the classification process, this research offers a practical solution to improve recycling efficiency, reduce the need for manual sorting, and contribute to sustainable waste management. The study highlights the significant role that deep learning can play in transforming waste management systems for a cleaner and more sustainable environment.

Keywords: Garbage Classification, CNN, NASNet, MobileNet, Recycling, Sustainability

ICMCTTAP119

Intelligent Valve Control Mechanism for Irrigation in Precision Agriculture

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ABSTRACT

Precision agriculture is essential to solving the world's food and water crises. This article presents Intelligent Irrigation System which is an innovative technology for increasing the efficiency of water use in agriculture. Our solution differs from traditional systems in that it combines IoT-sensitive sensors, predictive analytics. and mobile app interactions for real-time, research-based water management. The system uses a Raspberry Pi to collect sensor data such as soil moisture, temperature, humidity and rain sensor. A prediction algorithm analyzes these parameters to realistically predict water needs. Prediction allows for the deployment of precise valve control mechanisms. which automatically delivers water to plants according to their specific needs. All sensor readings and predictions are stored in Firebase, making data capture and retrieval easier. Flutter-based mobile applications provide farmers with easy-to-use tools to monitor and monitor their systems remotely. What sets this product apart is its adaptive data-driven technology. which not only reduces water wastage but it also ensures the health of crops under changing climate conditions. By using cost-effective hardware and scalable cloud infrastructure, the system is designed to be accessible to both small and large farmers. In times of uncertain weather and water shortages this smart irrigation system addresses a critical need for sustainable agriculture by integration of IoT, machine learning and innovative user experience to make agricultural technology support timely and changeable.

Keywords: Raspberry PI , Machine Learning , Precision Agriculture , Intelligent Irrigation in Agriculture.

Metaverse in Agriculture: Transforming Future

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ABSTRACT

Integration of the metaverse into agriculture leads to revolutionizing the design, management, and execution of agricultural practice. The agricultural metaverse with immersive technologies like virtual reality,augmented reality, and blockchain thereby can create a precision farm environment, farmer training and data-driven decision making. By simulating crop growth through the tool and AI-powered solutions, the farmer can visualize what the crops are going to look like; keep resources precisely managed, and see yields based on various environmental conditions. Blockchain within the metaverse also supports transparency and traceability across supply chains. Moreover, it fosters globalcollaboration , bringing farmers,agronomists,and consumers together in one shared virtual space to better share and exchange best practices in and sustainable farming techniques. It promises to further intensify food security, optimize resources, and make farming more resilient to climatic andenvironmental stresses.

Keywords: Metaverse, Precision Farming, Sustainable Agriculture, Supply Chain Transparency, Data-Driven Farming.

ICMCTTAP121

Accident Prediction Model for Madurai City

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ABSTRACT

Over 1,37,000 people were killed in road accidents in 2013 alone, that is more than the number of people killed in all our wars put together. There is one death for every four minutes due to road accident in India. The three highest total number of fatalities were reported in Uttar Pradesh, Maharashtra and Tamil Nadu. At Madurai, the number of accidents during 2013 was 695 and death toll was 145. Hence, the accident severity index for Madurai has been worked out 20.8.3 It is inferred from the review of related literatures that though many studies were taken up at national and state level, limited studies were found to be conducted at Madurai and that too covers the Madurai city alone. Contrarily, Compared to rural areas, the rate of accidents in the city limits was low.4The present study is indented to examine the accident prone areas in Madurai district and the cause of death would be analyzed from the point of view of Traffic Engineering – Sight Distance Analysis. The accident prediction model is generated from the available data. After analyzing the data, suitable recommendations would be suggested to make the roads in Madurai district safer.

Keywords: Accident, Prediction, Severity

ICMCTTAP122

Mimicking Human Brain Using Neuromorphic Computing Using AI

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ABSTRACT

In recent years, the great demand for computer efficiency has surged with the ever increasing need for big data processing, Al applications acceleration and push the limit of edge computing.Neuromorphic Computing stands today as an emerging yet influential field in the realm of computing and artificial intelligence. Conventional clock driven synchronous computers find themselves restricted in very important ways.with the increase of circuits towards larger scales ,it takes massive amount of power and fighting to meet the efficiency demands.This study explores the Neuromorphic Computing basics, requirements and difference from typical architecture, a closer look at Intel's Loihi 2 chip, software ecosystem like LAVA and the exciting future this technology promises.According to the research, as this field continues to evolve neuromorphic computing play a pivotal role in developing smart edge devices, enhancing the ability of AI to learn and adapt in real-time and opening the door to applications previously limited by computational constraints.

Keywords: Neuromorphic Computing, edge computing, artificial intelligence, Intel's Loihi 2, LAVA

Intelligent Recipe Recommendation Using Machine Learning

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ABSTRACT

Cooking can be seen, most of the time, as an annoying task that requires time and some essential skills. There is always a notion of 'Our app will eliminate the monotony of cooking' – and so it will because it offers an easier approach to discovering recipes along with the management of ingredients. This application also embodies the latest research in machine learning. It provides an easy-to-use interface to users allowing them to scan ingredients and find recipes tailored to their needs. As it stands, a Convolutional Neural Network: CNN model will support the efforts by ensuring ingredients are well positioned for cooking instruction, even for those not particularly good with proper cooking terms. Our app also uses voice commands to make out the recipes and offers the necessary steps visually, eliminating the need for writing by hand and making sure cooking becomes easier and more accessible. Even more so, our NLP capabilities allow for multiple languages, making sure users do not miss out on other cultures and the range of different cooking practices. The focus of the app is on the user experience which we believe can make the process of cooking great with a possibility of creating new dishes.

Keywords: *ML; Recipe Recommendation; Collaborative Filtering; Content-Based Filtering; Personalized Recommendations.*

ICMCTTAP124

A Hybrid Approach to Sentiment Analysis: Integrating Machine Learning and Lexicon-Based Methods for Multi-Domain, Multi-Language, and Multi-Format Data Classification

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ABSTRACT

This research presents a robust hybrid approach to sentiment analysis that integrates machine learning and lexicon-based methods to address the complexities of multi-domain, multi-language, and multi-format data classification. Traditional sentiment analysis approaches often struggle with diverse datasets and varying linguistic contexts, particularly in cases of limited annotated data. By combining machine learning's adaptability with the nuanced language processing of lexicon-based methods, this approach enhances accuracy and scalability, delivering improved sentiment classification across complex inputs. Our system was evaluated on datasets encompassing multiple languages, domains, and formats, demonstrating resilience and adaptability. This hybrid model serves as a flexible solution for applications requiring comprehensive sentiment understanding in dynamic linguistic and contextual settings, making it suitable for global audiences and cross-platform implementations

Keywords: Hybrid Sentiment Analysis, Multi-Domain Sentiment Classification, Multi-Language Sentiment Analysis, Lexicon and Machine Learning Integration, Cross-Platform Sentiment Analysis.

ICMCTTAP125

Effect of Deposition Time on the structural and Wettability Properties of Zirconium Nitride (ZrN) Coatings

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ABSTRACT

Structural and wettability properties of zirconium nitride thin films were studied with the objective of understanding the effect of deposition time. Coting were developed using a magnetron sputtering technique. The deposition time varied from 20 to 85 minutes. which led to the development of (020) and (011) peak for zirconium nitride. An increase in surface roughness value was shown to be connected with fluctuations in deposition time. The findings revealed that as deposition time increased, the value of surface roughness of coating increases from 1.71 nm to 8.5 nm, the wettability properties of the samples were studied and the maximum contact angle achieved was 121.5º.

Keywords: Thin Films, Structural, Wettability, Zirconium Nitride

ICMCTTAP126

Role of AI in Environmental Monitoring

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ABSTRACT

The application of Artificial Intelligence (AI) in environmental monitoring offers accurate disaster forecasts, pollution source detection, and comprehensive air and water quality monitoring. This article provides an overview of the key features and values of environmental monitoring, the challenges faced in conventional methods, and possible potential AI-based solutions. Several significant AI applications in environmental monitoring are mentioned, showcasing their contributions to effective environmental management. AI technologies enhance environmental monitoring by enabling better understanding, prediction, and mitigation of environmental risks. However, realizing the full potential of AI faces hurdles such as a shortage of specialized AI experts in the environmental sector and challenges related to data access, control, and privacy. These issues are more pronounced in regions with developing technological infrastructure. The paper advocates for proactive data governance measures by governments to protect sensitive information. Despite these challenges, the future of AI in environmental monitoring remains promising, with advancements in AI algorithms, data collection techniques, and computing power expected to further improve accuracy and efficiency in pollution monitoring and management.

Keywords: Artificial Intelligence, Environmental Monitoring, Disaster Forecasting, Pollution Detection, Air Quality Monitoring, Water Quality Monitoring, Technological Infrastructure, Data Governance

ICMCTTAP127

Noether Semi-Residuated Almost Distributive Lattices for Constructing Cryptographic Primitives

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ABSTRACT

Lattice-based cryptography is the generic term for constructions of cryptographic primitives that involve lattices, either in the construction itself or in the security proof. Lattice-based constructions support important standards of post-quantum cryptography. The survey by Nguyen and Stern et al. also describes some applications of lattices in cryptanalysis. The present paper aims to study the introduction of the concept of Noether Semi-Residuated Almost Distributive Lattices Extending for Security (NSR ADL ES), proved vital results in a NSR ADL and further proved the basic theorem of NSR ADL which is trying to extending for security.

Keywords: Post-Quantum Cryptography, Proved, Fundamental, Lattice Cryptography, Semi-Residuated Almost Distributive Lattices.

ICMCTTAP128

Increasing the Capability of Routing Algorithm for Multi-Objective Function in Wireless Sensor Networks Using Chaotic Particle Swarm Optimization

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Abstract

This paper highlights the Chaotic Particle Swarm Algorithm for optimizing multi-objective function in wireless sensor network. First this, the technique is individually implemented and then the study is done and the results obtained after simulation. The following objectives are taken into consideration (1) Maximum Path Coverage at minimum expenditure (2) Extreme Node Participation and (3) Optimum Key participation to find a group of nodes that are optimal in nature using Chaotic Swarm optimization. This study focuses on the efficiency and results of this evolutionary algorithm that satisfies all the objectives. The good part of this paper is that it lowers the cost and covers the bigger percentage of the network. Wireless Sensor Networks (WSNs) are crucial for numerous submissions, dictating competent routing algorithms to optimize energy consumption, reduce latency, and ensure data reliability. This paper proposes a innovative routing algorithm leveraging Chaotic Particle Swarm Optimization (CPSO) to enhance multi-objective configurations in WSNs. Simulations conducted using the NS3 simulator demonstrate significant improvements in energy efficiency, latency, and reliability compared to existing routing protocols.

Keywords: Chaotic Particle Swarm Optimization Algorithm (CPSOA), Wireless Sensor Network (WSN).

ICMCTTAP129

SecureLedger: Ultimate Shield against Land Transaction Frauds in India using Blockchain

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ABSTRACT

The purpose of this study is to transform land ownership transfer processes using Blockchain technology, enhancing security, transparency, and efficiency while addressing limitations of traditional land registration systems. The Secure Ledger employs a decentralized and immutable Blockchain ledger to record land ownership transactions. Smart contracts are integrated to automate property transfers, eliminating intermediaries and reducing processing time. The system ensures tamper-proof records and real- time accessibility to transaction histories. The proposed system will reduce the risk of fraud and forgery inherent in centralized systems. It will enhance the transparency and trust among stakeholders by providing a secure and auditable transaction environment. The automation of processes through smart contracts enables faster and cost-effective property transfers. The Secure Ledger can modernize property management, streamline land transactions, and eliminate inefficiencies in traditional systems. It sets a new standard for land ownership, ensuring trust, data integrity, and economic efficiency. This Project Idea introduces a Blockchain-based framework for secure land transactions, addressing fraud, inefficiencies, and lack of transparency in traditional systems. It highlights the potential of decentralized technology to revolutionize property management.

Keywords: Blockchain Technology, Land Ownership, Secure Ledger, Decentralized Ledger, Smart Contracts, Property Management, Fraud Prevention

ICMCTTAP130

A Preliminary study on Potential of Phase Change Materials in Battery Thermal Management Systems for Electrical Vehicles

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ABSTRACT

Globally the demand for Electric Vehicles (EV) is increasing due to the harmful effects of exhaust gases emitted by Internal Combustion Engine (ICE) based locomotives such as global warming, environmental pollution, health effects etc. Battery pack is the primary power source of to run the EVs. But the problem arose when the battery pack itself was not able to perform efficiently due to heat generation during internal chemical reactions. To control the temperature of the battery discharging at high discharge rate various Battery Thermal Management Systems (BTMS) were developed. This study is focused on the feasibility of Phase change Material (PCM) based cooling systems for EV. PCM based BTMS are an ideal choice for thermal management of EV batteries as it can handle high thermal loads emitted by battery packs while discharging at high rates.

Keywords: BTMS; PCM; Electrical Vehicle

ICMCTTAP131

Identification of Neurological Disorder using Deep Learning

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ABSTRACT

Neurological diseases that feature conditions like Alzheimer's, Parkinson's, and epilepsy have major impacts on global health and hence underpin a need for high-accuracy early diagnosis. DL has shown considerable success in treating complex data analysis, but challenges remain, like those concerning heterogeneity, limited interpretability, and diagnostic mismatch. Advanced DL architectures, variable and iterative neural networks, and new techniques such as multiple data fusion and translational AI systems provide a sophisticated approach toward improving neurological diagnosis. The aim is to process information handling missing data, improve model robustness, and have physicians who can guide results to inform decision-making. And it is to provide our proposed improvements such that we will improve the accuracy in diagnosis, better improvement in intervention, and higher integration of DL with clinical practice, hence enabling more reliable and accessible vascular health solutions.

AI based Hallucination Detector

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ABSTRACT

The main goal of this project is to create an advanced system that can accept questions submitted by users, produce AI-generated answers, and guarantee their accuracy by using an integrated validation method. This involves connecting to external web APIs that have access to trustworthy and authoritative sources, allowing the system to compare AI-generated responses with verified factual data in real time. If the AI-generated answer is accurate, the system will show a confirmation, providing users with assurance of its reliability. However, ifthe answer is incorrect, the system will flag the error and present the accurate response, addressing the issue of AI generating believable but factually inaccurate answers. In addition,the system records inaccurate responses to detect recurring error trends, which helps to enhance and refine the AI model over time. It also includes an interactive explanation tool that allows users to comprehend the validation process, promoting transparency in decision- making. To increase user involvement, the system can provide information about the origin ofthe correct answer and offer insights into differences between the AI-generated answers and the correct ones. Additionally, the system will have real-time alerts for critical errors, promptly notifying users when high-risk or sensitive topics are involved. The system's overallaccuracy will be evaluated through a periodic review mechanism, which will offer feedback on performance enhancements. Additionally, user feedback will be incorporated into the system to continuously improve it and adapt to changing information sources. Moreover, the system will utilize AI-based learning algorithms to anticipate and prevent potential errors, thus enhancing response quality over time. Ultimately, the project's goal is to establish a reliable and user-friendly AI environment that fosters trust through real-time verification, transparency, continuous enhancement, and minimized risks of incorrect AI outputs.

Keywords: AI Learning Algorithms, AI Response Accuracy, API Integration, Critical Error Alerts, ErrorDetection, Real-Time Validation, Transparency, User Feedback, IEEE

ICMCTTAP133

Artificial Intelligence-Based Classification of Cardiac Arrhythmia Beats from Short-Duration ECG Signals

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ABSTRACT

Death due to Cardiac arrhythmia is significantly increasing day by day. Therefore, in medical practices, early diagnosis can help to take preventive measures and reduce mortality rate. In this proposed work, we implemented an Artificial Intelligence (AI)-based approach for classification of Premature Atrial Contraction (PAC), Premature Ventricular Contraction (PVC) and Normal beats. For the removal of baseline wander and high frequency noises, Discrete Wavelet Transform (DWT) and the two-stage median filter are used. The QRS complex region of each arrhythmia beat was then segmented from noise free ECG signals, and based on these segmentations, nine statistical features were extracted. To classify these features, classifiers such as Support Vector Machine (SVM), K-Nearest Neighbor (K-NN), Principal Component Analysis (PCA) and k-means clustering were utilized. SVM with Gaussian kernel classifier achieved the highest A_{cc} of 99.87%, S_e% of 99.83%, S_p of 99.90%, and $+P$ of 99.83%. These results indicate that the proposed method using SVM is highly effective for classifying Normal, PAC and PVC beats.

Keywords: Cardiac Arrhythmia, ECG, AI, PAC, PVC

ICMCTTAP134

Cyber Security with Artificial Intelligence

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ABSTRACT

This paper investigates the application of artificial intelligence (AI) and machine learning (ML) techniques in enhancing cybersecurity. Traditional cybersecurity approaches, primarily reliant on signature-based detection and manual intervention, have become less effective in addressing sophisticated and rapidly evolving threats. AI and ML offer promising solutions by automating threat detection, learning from large datasets, and predicting novel cyber threats. This study explores various ML algorithms for anomaly detection, malware classification, intrusion detection, phishing prevention, and behavioral analysis, evaluating their effectiveness and accuracy. Findings indicate that AI and ML models can improve detection rates, adapt to new types of attacks, and significantly reduce response times, providing a robust, adaptive defense mechanism for modern cybersecurity challenges. Keywords— Cybersecurity, Artificial Intelligence, Machine Learning, Anomaly Detection, Malware Classification, Intrusion Detection, Phishing Prevention, Behavioral Analysis, Adaptive Defense, Real-Time Threat Detection.

ICMCTTAP135

AI-Powered Pest and Disease Detection Drone

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ABSTRACT

The integration of artificial intelligence (AI) with drone technology presents a revolutionary approach to modern agriculture, particularly in pest and disease management. This document explores the development and deployment of AI-powered drones designed for early detection and precise identification of crop pests and diseases. Equipped with advanced sensors, high-resolution cameras, and AI algorithms, these drones autonomously monitor large agricultural fields, capturing detailed aerial imagery. Through real-time image analysis, the AI systems can identify anomalies such as pest infestations or disease symptoms with high accuracy, enabling farmers to take timely and targeted actions. By leveraging AI and machine learning, these drones offer significant improvements over traditional methods, reducing the need for manual scouting and minimizing the use of chemical pesticides. The system also provides predictive analytics, helping farmers anticipate potential outbreaks based on environmental conditions and historical data. This technology not only enhances crop yield and quality but also promotes sustainable farming practices by reducing costs and mitigating environmental impacts. This document provides an in-depth analysis of the technical framework, application potential, and future directions for AI-powered pest and disease detection drones, highlighting their role in the advancement of precision agriculture.

Keywords: AI-Powered Drones, Pest Detection, Disease Detection, Agricultural Drones, Precision Agriculture.

ICMCTTAP136

Automated Smart Kit for Health Monitoring and Emergency Response

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ABSTRACT

For over a decade, advancements in network technology have greatly enhanced data transmission across the globe. The rapid growth of the Internet of Things (IoT), especially in healthcare and home automation, has underscored the importance of secure data transmission to ensure confidentiality and privacy. This paper introduces an integrated approach to the Internet of Healthcare Things (IoHT), focusing on the development of a real-time "Patient Monitoring System." The system is designed to monitor vital signs such as heart rate, SpO2 levels, ECG, respiration, and body temperature using multiple sensors. These sensors continuously collect and transmit data to the cloud in real time, enabling healthcare professionals to access the information through a web portal or smartphone for timely analysis and intervention. The system is also equipped with an emergency switch, which, when activated, sends the patient's GPS coordinates to the doctor and family members via a GSM module, facilitating quick responses in emergencies. Additionally, the system incorporates a buzzer that triggers upon detecting abnormal readings, such as irregular heart rate, abnormal temperature, or respiration issues, providing immediate alerts. This real-time monitoring solution not only allows for the constant observation of patient health but also ensures prompt emergency responses when needed. By integrating sensors, GPS, GSM, and cloud technologies, the system offers a comprehensive solution for remote health monitoring, improving patient care and reducing response times during critical situations.

Keywords: Wearable Technology, IoT (Internet of Things), Patient Safety, Medical Alerts, Sensor Technology, Heartbeat Sensor, Temperature Sensor, Respiration Sensor, ECG Sensor, GPS (Global Positioning System).

ICMCTTAP137

Investigation of the Interaction between Selective Receptor Modulators and the FFAR2-FFAR3 Heterodimer Complex Using *In-Silico* Methods for the Prevention of Degenerative Diseases

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ABSTRACT

The gut microbiome plays a critical role in human health, particularly through its metabolites, such as short-chain fatty acids (SCFAs), which mediate host-microbiome communication by activating free fatty acid receptors FFAR2 and FFAR3. These G-protein-coupled receptors (GPCRs), located in diverse tissues such as the intestine, liver, and pancreas, influence metabolic and immune processes. The loss of function of these proteins is linked to diseases like diabetes, obesity, inflammatory bowel disease, and cardiovascular disorders. The present study explores the construction of FFAR2-FFAR3 heterodimeric complex and potential implications in disease modulation through *in silico* approach. Selective Receptor Modulators (SRM, includes agonists and antagonists) were allowed to interact with FFAR2, FFAR3 and FFAR2-FFAR3 hetero dimer through molecular docking technique to understand the key binding region at orthosteric and allosteric pockets. Based on interaction score, residues involved in hydrogen, hydrophobic interactions, SRM's like acetate (agonist) and CATPB (antagonist) were further considered for molecular dynamics simulation. Simulation studies confirm the stability of receptor-ligand complexes, offering a dynamic perspective on their structural flexibility and behavior. These findings support targeted therapeutic strategies, especially in degenerative diseases. Further studies involving experimental validation and refinement of computational models could expand the understanding of GPCR-mediated signaling.

ICMCTTAP138

Enhancing Rectangular Patch Antenna Performance Using DGS for Wireless Communication

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ABSTRACT

This article presents an analysis of a novel multiband microstrip patch antenna design. To achieve gain enhancement, a comb-shaped Defected Ground Structure (DGS) is incorporated into the ground plane of the antenna. The proposed antenna is designed using a Rogers RT Duroid-5880 substrate with a dielectric constant (εr) of 2.2 and a thickness of 1.6 mm. It operates across eight distinct frequency bands ranging from 1.96 GHz to 7.2 GHz, delivering a return loss below -10 dB. The performance of the multiband antenna is validated and optimized using Ansys HFSS, leveraging the Method of Moments.

Keywords: Rectangular Microstrip Patch Antenna, Wireless Communication, HFSS, Defected Ground Structure

ICMCTTAP139

Analyzing and Prediction of a Gold Price with ML Algorithms

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ABSTRACT

Gold is a substance, shift element with an intense and metallic yellow appearance. By the above qualities of gold makes highly valued and versatile element. It has prominently played an important role in our economic area. It is one of the investment assets for the people. This paper analyses gold price data from 2013 to 2023, showing daily prices, highs, lows, trading volumes, and daily changes. This rich data set is useful for anyone wanting to study or visualize gold market trends over the past decade. We started by cleaning the data, fixing missing values, and handling outliers. Then, we used various graphs and charts like trend lines, distribution plots, and pair plots to explore and understand the data. Next, we built prediction models using different techniques like Linear Regression, Support Vector Regression (SVR), Decision Tree, Random Forest, and Gradient Boosting. These models help us forecast future gold prices based on past data. The analysis reveals important trends and patterns in gold prices, providing insights that can help in financial analysis and market prediction.

Keywords: Gold, Linear Regression, Decision Tree, Random Forest, Support Vector Regression, Gradient Boosting.

ICMCTTAP140

Prediction of Fish Availability Using Regression Analysis in Vembanad Lake

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ABSTRACT

Fish diversity is correlated with the biotic and abiotic factors in the aquatic environment. Fish samples from the Vembanad lake were collected for three consecutive years. Sodium, Potassium, Magnesium, Manganese, Copper, Iron, Calcium, Dissolved Oxygen, BOD, pH, salinity, and temperature in the water samples were analysed using APHA (2000). Fish diversity was analysed using diversity indices such as Berger Parker index, Shannon Weiner index, Simpson Index, Hills number and Margalef's index. Pearson's correlation coefficient was using to find out correlation among variables. Regression analysis have been shown that temperature is the most predictable variable for the fish diversity in Vembanad ecosystem.

Keywords: Fish diversity, Regression, Vembanad

ICMCTTAP141

Comparative Analysis of Performance in Proposed and Conventional Cloud Computing System

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ABSTRACT

Data management has seen significant revolutionization because of cloud computing. It has provided scalable, cost-effective and flexible solutions across industries. However, the increasing complexity and volume of data because of certain trends like IoT and multimedia sharing challenge the performance and sustainability of traditional cloud systems. These systems face inefficiencies in the usage of bandwidth as well as storage, energy consumption and security. Hence, it requires innovative approaches to optimise cloud performance. This paper proposes a hybrid model as it integrates lossless and lossy data compression techniques with AES encryption to enhance data transmission, storage efficiency and security in cloud environments. Lossless compression ensures data integrity for structured data while lossy compression significantly reduces multimedia file sizes with acceptable quality trade-offs. AES encryption protects data during storage and transmission and thus it addresses the vulnerabilities of security. Moreover, simulations conducted in a Python environment demonstrate significant improvements in transmission speed, storage efficiency and energy consumption with minimal latency overhead. It is shown from the comparative analyses that the proposed model outperforms traditional models that lack integrated compression or encryption. These findings highlight the potential of this model to meet the drawing data demands while achieving a balance between performance optimisation and resource conservation. Therefore, this study contributes to advancing cloud computing practices as it dispenses sustainable and secure solutions for modern data challenges.

Keyword: Cloud Computing, Data Compression, Lossy Compression, Lossless Compression, AES Encryption, Performance Optimisation, Data Security.

ICMCTTAP142

An Exploration of the Evolution of Wound Dressing: From Antiquity to the AI Age

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ABSTRACT

Wound dressings demonstrate humanity's ongoing pursuit of wound healing and treatment. Since ancient tribes employed honey, glue, and animal skins to treat wounds, dressing has evolved. Ancient Egyptians and Greco-Romans employed linen bandages and herbal remedies for healing. As medical knowledge increased throughout the Middle Ages and Renaissance, wound treatment became more methodical, using clean bandages and early antiseptics.

Cotton and gauze were developed throughout the Industrial Revolution and following eras, and wound healing without infection became important. Synthetic materials like hydrocolloid and alginate dressings improved moisture management and the process of wound recovery in the 20th century. The late twentieth and early twenty-first centuries have seen bioactive and interactive dressings including silver, collagen, and growth hormones. These treatments boost natural healing. AI is shaping wound dressings' future. AI-driven technology enables predictive modeling, accurate wound assessment, and personalized dressing strategies that enhance healing. Nanotechnology and bioengineered wound dressings expand wound treatment possibilities. This abstract discusses wound dressings' history, current trends, and how AI and cutting-edge biomaterials may change wound treatment.

Keywords: Wound care, Ancient Methods, Industrial Revolution, AI Technology

ICMCTTAP143

Enhancing Skin Cancer Diagnosis through Optimized Convolutional Neural Network in a Smart Health Care System

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ABSTRACT

Skin cancer is one of the major health issues at the global level where the early and accurate diagnosis plays an important role for effective treatment and improved patient prognosis. The project "Enhancing Skin Cancer Classification Using Optimized Convolutional Neural Networks" addresses the problem by building an advanced AI-based diagnostic tool to improve the classification and detection of skin cancer using highly sophisticated architectures in Convolutional Neural Networks and data augmentation techniques. We start with heavy preprocessing and augmentation of the ISIC 2019 dataset, which is the benchmark for skin lesion classification. To address data scarcity and imbalance, we have applied data augmentation techniques to enhance model performance. In addition, we make use of CNN architectures such as InceptionResNetV2 and EfficientNetV2 with different strengths for the tasks of image identification and classification. Our technology resulted in excellent accuracy. For instance, EfficientNetV2 scored 97.3% and InceptionResNetV2 scored 96.1%. These diagnostic reports, detailed and reliable, provided medical professionals with visual aids. The reports are available for easy download as PDFs, making it easier to examine and document. Our approach by including the latest CNN architecture, as well as data augmentation methods, brings a potent AI-based solution to improve diagnostic accuracy with an opportunity for transformation in clinical practices and thereby providing improved patient outcomes.

Keywords: ISIC 2019, Augmentation, Convolutional Neural Network, EfficientNetV2, InceptionResNetV2, Deep Learning, Skin Cancer Classification

ICMCTTAP144

Exploratory Analysis of Skin cancer Dermatoscopic Image Datasets and Classification Methods

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ABSTRACT

Skin cancer is a critical global health issue, where early detection significantly improves treatment outcomes. In this review paper, titled *Exploratory Analysis of Skin Cancer Dermatoscopic Image Datasets and Classification Methods*, we systematically explore the intersection of artificial intelligence (AI) and skin cancer diagnosis. Our approach began with a detailed literature survey of 40 research studies, providing insights into advancements and challenges in AI-based classification methods. This survey emphasizes the role of machine learning algorithms, particularly convolutional neural networks (CNNs), and datasets such as HAM10000, ISIC 2019, and ISIC 2024 in improving diagnostic performance.

Next, we conducted exploratory data analysis (EDA) on the HAM10000, ISIC 2019, and ISIC 2024 datasets, uncovering critical patterns related to lesion distribution, anatomical sites, and demographic factors. These analyses highlight biases and imbalances in the datasets, which are crucial to address for robust model training.

Finally, we discuss the creation and evaluation of a machine learning model trained on a separate dataset. Initial experiments revealed challenges such as overfitting and class imbalance. Through advanced data augmentation techniques and the integration of an *Augmentor* pipeline, we mitigated these issues, achieving improved accuracy and generalizability.

This paper provides a comprehensive framework for integrating literature insights, dataset analysis, and iterative model improvement to develop effective AI-based solutions for skin cancer detection. It underscores the importance of addressing dataset biases, adopting diverse datasets, and refining methodologies to advance AI applications in dermatology.

Keywords -- Skin Cancer Detection ,Dermatoscopic Image Analysis , Artificial Intelligence (AI), Convolutional Neural Networks (CNNs), Exploratory Data Analysis (EDA), HAM10000 Dataset, ISIC 2019 Dataset, ISIC 2024 Dataset, Data Augmentation , Class Imbalance in Datasets ,Machine Learning in Dermatology, Medical Image Classification , AI for Dermatology.

ICMCTTAP145

IoT Based Vehicle Overload Detection and Preventing Accident

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ABSTRACT

This project presents an Arduino-based vehicle overload detection system aimed at preventing accidents through the use of Internet of Things (IOT) technology. The system addresses the critical safety issue of vehicle overloading, which is a significant contributor to road accidents .The vehicle is equipped with load sensors connected to an Arduino microcontroller that continuously monitors its weight. If the vehicle exceeds a specified weight limit, it will not start, thereby preventing potential accidents caused by overloading. In cases where starting the vehicle is necessary, the driver must press a designated secret key, allowing for a manual over ride. Upon activation of this secret key, the system automatically sends an SMS containing the vehicle's location to the nearest police station. This timely notification enables law enforcement to take appropriate action against overloaded vehicles, enhancing public safety. By integrating load detection with IOT communication, this project provides a practical and effective solution for managing vehicle overload. The implementation of this system not only promotes compliance with safety regulations but also contributes to reducing road accidents, ultimately fostering safer driving conditions.

Keywords: Arduino Nano, Vehicle Overload Detection, load Cell Sensor, GSM/GPS Integration, Vehicle Prevention, IOT- based Vehicle Monitoring

ICMCTTAP146

Robust YOLO Approach for Mango Fruit Detection Using Computer Vision

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ABSTRACT

In precision agriculture, on-tree fruit detection is a solution for automating many tasks which governs yield estimation, harvesting and quality monitoring. Among all tropical fruits, mangoes are the most widely consumed fruit and is a member of the cashew family. Mangoes have been cultivated in South and Southeast Asia for thousands of years. There are several cultivars of mango, which vary in size, shape, sweetness, skin colour and flesh colour. Mango is India's most important commercial fruit crop, accounting for over 54% of all mangoes produced globally. This paper is a study conducted to detect the fruit using a simple non-destructive YOLOv7 deep architecture, a highly accurate object detection method with less error rate. A robust dataset, *MangoNet* of mango images which are annotated using *labelImg* tool, is used in the study. The detection of on-tree mangoes will be beneficial for the yield estimation of fruits. The YOLOv7 deep model is employed, incorporating transfer learning to enhance model efficiency and accuracy. The performance of the model is evaluated using the metrics mean average precision (mAP) and Intersection over Union (IoU). 99.5% accuracy is met in mAP@0.5. The results show the feasibility of on-tree mango detection with high precision and recall for automated agricultural systems. Python programming language with pyTorch library is used for the transfer learning. This work highlights the potential of YOLO approach to optimize the mango farming practices and contribute to the smart agriculture technologies.

Keywords: Computer Vision, MangoNet, labelImg, YOLOv7, Mean Average Precision (MAP).

ICMCTTAP147

Marketmates: Systematic Literature Review on Correlation between MSME Investment Turnover and Employment.

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ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) are crucial to India's economy, providing significant employment and contributing to Gross Domestic Product (GDP). This study investigates the relationship between MSME investment, turnover, and employment generation, using data from enterprises registered under the Udyam Portal. It evaluates the impact of government initiatives like Prime Minister's Employment Generation Programme (PMEGP), Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), and Scheme of Fund for Regeneration of Traditional Industries (SFURTI) in improving MSME performance. The findings reveal that higher investments lead to increased turnover and more job opportunities, demonstrating a strong correlation between these factors.

To further analyze these trends, a machine learning model is developed to predict employment generation based on investment and turnover data. The model highlights key patterns and provides insights into how strategic investments can drive growth and job creation. The study underscores the importance of optimizing government schemes and enhancing financial support to address challenges faced by MSMEs, such as limited access to capital and technology. By bridging these gaps, MSMEs can play an even greater role in India's socio-economic development.

Keywords: MSME, Employment Generation, Investment, Turnover, Machine Learning, Data Normalization, Visualization, Policy Optimization, Government Schemes

ICMCTTAP148

Augmented Reality-Driven Virtual Jewellery Try-On: Enhancing Consumer Engagement and Personalization

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ABSTRACT

Purpose- Augmented reality (AR) technology has enhanced consumer engagement in e-commerce, particularly in jewellery. This research introduces an augmented reality try-on solution designed specifically for virtual jewellery fitting within a mobile environment. This paper outlines the development of the Jewellery app, which leverages computer vision and machine learning models in order to enable users to try on various jewellery pieces virtually, hence thereby simulating a realistic and interactive fitting experience.

Approach- A real-time augmented reality experience is delivered by combining Google ML Kit with custom Flutter-based modules. A key methodological approach involves capturing live camera frames, detecting body landmarks (such as detecting shoulders and fingers), and overlaying selected jewellery images on these points with high fidelity. We integrate advanced gesture recognition, that includes pinch and drag controls, allowing users to interactively adjust jewellery placement for a more personalized fit. Additionally, smoothing algorithms are applied to enhance stability, which reduces visual jitter caused by real-time camera and body movements.

Findings- Preliminary findings demonstrate that the Jewellery app successfully provides a stable and intuitive try-on experience, which allows users to visualize jewellery placement with precision and control. The system meets essential usability and user experience benchmarks by offering gesture-based customization, thereby supporting potential applications in digital jewellery retail and online marketing.

Originality/value- This research utilizes real-time augmented reality to address both technical challenges and usability issues specific to virtual try-ons in the jewellery industry. Jewellery's integration of pose tracking and gesture-based control within a mobile framework provides significant value, bridging the gap between traditional shopping and digital solutions, which gives retailers a novel way to engage consumers in a virtual environment interactively.

Keywords- Augmented Reality, E-commerce, computer vision, user experience, mobile environment, jewellery sector

ICMCTTAP149

WhatsApp's Evolution: Analyzing Indian Users' Adaptation to Advanced Features

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ABSTRACT

This research examines how Indian users respond to new features in WhatsApp, particularly those that enhance communication and efficiency. By analyzing data from surveys of 250 participants, interviews with 25 individuals, and observing user interactions, this study highlights the advantages and challenges of using smart features. While 80% of users appreciated tools like smart replies, 74% raised concerns about privacy. The findings underline the importance of tailored features, strong data protection measures, and more control for users to adapt these tools successfully.

Keywords: WhatsApp, Privacy, Adaptation, Messaging Platforms, India, Customization

ICMCTTAP150

Skill Development and Entrepreneurship: NEP 2020's Vision for India's Youth

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ABSTRACT

The National Education Policy (NEP) 2020's emphasis on skill development and entrepreneurship is expected to have a profound impact on India's youth. By integrating vocational education into the normal curriculum, promoting entrepreneurship education, and fostering industry-academia partnerships, NEP 2020 aims to equip India's youth with the requisite skills and entrepreneurial potential. This can enhance their employability, entrepreneurial spirit, and ability to be creative and inventive. However, problems like debt, unemployment, and regional disparities may still arise. Through the successful implementation of NEP 2020's provisions, including mentorship and support networks, these barriers can be reduced and the potential of India's youth can be fulfilled. In order to find out how India's young perceive the effects of skill development and entrepreneurial programs under the National Education Policy (NEP) 2020, this study mainly uses an opinion poll. The study adds to the body of knowledge already available on entrepreneurship and skill development, offering guidance to stakeholders in the industry, educators, and policymakers.

Keywords: National Education Policy (NEP) 2020, Skill Development, Entrepreneurship.

ICMCTTAP151

Revolutionizing Healthcare with Quantum-Based QR Codes: A Path to Secure Digital Medical IDs

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ABSTRACT

India's healthcare system has long relied on paper-based medical records and physical ID cards, exposing vulnerabilities such as privacy risks, inefficiencies, and patient stress. Cybersecurity incidents, including unauthorized access, ransomware attacks, and data breaches, further emphasize the need for secure solutions. This study adopts a mixed-methods approach to investigate these challenges and assess the feasibility of a quantum-based QR code unique ID system for modernizing medical record management.

A survey of 248 participants across Tamil Nadu, Karnataka, and Kerala reveals critical insights: 70% of respondents expressed concerns about the privacy of paper-based systems, 60% frequently or sometimes forget their ID cards, disrupting medical service access and 80% reported stress caused by managing physical records, especially during emergencies. The study also highlights strong digital readiness: 90% of respondents own smartphones, demonstrating potential for mobile-based solutions and 85% are familiar with QR codes, indicating widespread accessibility even in less-literate populations.

This research proposes a quantum-based QR code system that generates tamper-proof, encrypted identifiers using quantum cryptographic principles. This ensures privacy-compliant data access while eliminating the need for physical ID cards. The system's portability and simplicity significantly reduce patient stress and operational inefficiencies. The study concludes that a quantum-based QR code system is essential for addressing India's healthcare challenges amidst increasing cybersecurity threats. It offers a robust, future-ready solution aligned with global digital health standards, enhancing privacy, reducing vulnerabilities, and improving healthcare delivery.

Keywords: Quantum-based QR Code System, Unique and Safe ID, Medical ID.

ICMCTTAP152

Integration of PVA Solar Cells in Automobiles: An Eco-Friendly Energy Alternative

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ABSTRACT

This research paper describes the use of polyvinyl alcohol (PVA) solar cells in the automobile industry as a renewable energy solution. PVA solar cells have become more popular because of its lightweight and flexible properties, and can be easily integrated into vehicle surfaces to utilize solar energy. PVA solar cell technology gives numerous benefits to the user, including reduced reliance on fossil fuels, enhanced energy efficiency, and lower carbon emissions. The paper gives insights of the mechanisms of energy generation through these coatings, the environmental advantages of using biodegradable materials, and the potential for improved vehicle performance. Paper also addresses the challenges of durability, efficiency, and market acceptance. Eventually, the integration of PVA solar cells represents a promising step towards a more sustainable and eco-friendly automotive industry.

Keywords: Automobiles, Efficiency, Electric Vehicle, PVA, Solar Cell

ICMCTTAP153

EcoTrack: The Smart Waste Collection Navigator

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ABSTRACT

EcoTrack presents an innovative solution to the growing challenges of waste management by leveraging cutting-edge technology. By integrating predictive analytics, optimized collection routing, and real-time monitoring of bin fill levels, EcoTrack enhances operational efficiency while minimizing environmental impact. The system bridges the gap between traditional waste management practices and advanced technological solutions, promoting environmental stewardship and sustainability. Through its holistic approach, EcoTrack not only addresses inefficiencies but also paves the way for smarter urban waste management solutions.

Keywords: Waste Management, Smart Technology, Predictive Analytics, IoT, Environmental Sustainability, EcoTrack

ICMCTTAP154

Campus Placement Prediction Using Machine Learning Algorithm

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ABSTRACT

Predicting campus placement outcomes is essential for academic institutions and students alike, providing valuable insights into employability and skill readiness. This paper presents a machine learning-based approach to predict the likelihood of students being placed in campus recruitment drives. Traditional methods primarily focus on academic metrics such as grade point averages (GPA) and test scores, often overlooking critical non-academic factors. To address this, we propose a more holistic model that incorporates academic records, technical skillsets, soft skills, internships, and extracurricular achievements. In this study, multiple machine learning algorithms, including Decision Trees, Random Forest, Gradient Boosting, and Neural Networks, were applied to historical student data from campus recruitment cycles between 2021 and 2025. Feature importance analysis reveals that non-academic factors such as internship experience and technical certifications contribute significantly to placement predictions. Our results demonstrate that ensemble methods outperform individual models in terms of prediction accuracy. Keywords: Support Vector Machines, K-nearest neighbour, Machine learning, Decision Tree.

ICMCTTAP155

Predictive Analysis of Early Disease Detection: A Comprehensive Research Overview

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ABSTRACT

The rapid advancements in technology and data science have paved the way for predictive analytics to play a pivotal role in early disease detection. The ability to leverage vast datasets and sophisticated algorithms has transformed healthcare, facilitating timely interventions and personalized treatment options. This paper provides a comprehensive review of predictive analytics in early disease detection, highlighting methodologies, applications, challenges, and future directions.

Kaywords: Data Science, Predictive Analysis, Health Care

ICMCTTAP156

Detection and Testing of Keratoconus Using Deep Learning

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ABSTRACT

This article examines the properties of a convolutional neural network (CNN) which specializes in categorizing corneal maps into three distinct types – normal, keratoconus and subclinical keratoconus. The evaluation feature is of paramount importance when determining candidates for refractive surgery in order to reduce the risk of postoperative ectasia. The images used in the study were obtained from patients of the one institution, who were anonymized, and the study images were defined by professional doctors. In order to safeguard the privacy of the patients, all the images were anonymized and afterwards defined by professional doctors into groups that had clinical significance. They were pre-processed and these images were grouped into five categories including 'front elevation' 'back elevation', 'pachymetry', 'sagittal curvature' maps and the composite map. Thus, this structure allowed us not only to volumetrically analyse the influence of features but also to the effects of features as a whole. To perform this class of classification tasks, the authors have developed a domain influenced CNN architecture. The structure included two convolutional layers and was dropout regularized in order to increase the model's ability to generalise while decreasing the effects of overfitting. The model has employed a softmax activation function in the last layer of the network in order to perform multi-class classification. The CNN was trained and validated on the dataset which was pre-processed and which had labelled categories to maximise the accuracy of the model. We prevent overfitting by using data augmentation during training. These included slight rotations, zoom adjustments and spatial shifts the dataset so that the model is able to effectively learn how to generalize on unseen data. A convolutional neural network (CNN) was also trained and its performance was evaluated along with a support vector machine (SVM) that was trained on manually extracted corneal topographic parameters, which provided a new perspective on the findings of the

SVM and emphasized the strength of the CNN in using images for classification. A positive advancement where Scheimpflug tomography and anterior segment OCT provide precise vector targeting of the corneal layers as well as assess biomechanics and genetic risk factors for early diagnosis and risk evaluation is depicted. While deep learning models are accurate, especially with subclinical cases, replication across studies needs improvement. CXL is the principal treatment method and new technologies including accelerated and epithelium-on protocols are also effective, while appearing to decrease complications. Finally, this review is aimed providing a clinical update on keratoconus focusing on recent developments in diagnosis and their role in a multi-pronged approach to bolster patient outcomes. It also means the convergence of imaging, artificial intelligence, and novel treatments in the management of keratoconus which provides a holistic premise for future research and clinical practice.

Keywords - Keratoconus Diagnosis, Convolutional Neural Network (CNN) Corneal Collagen Cross-Linking (CXL), **Artificial Intelligence in Ophthalmology**

ICMCTTAP157

Smart Fertilizer Application System Using Machine Learning

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ABSTRACT

Plant diseases are a major challenge for farmers, leading to crop loss and reduced yield. Early detection and treatment of these diseases are crucial to preventing further damage to crops. However, identifying plant diseases can be challenging, and misdiagnosis can lead to ineffective treatments. Conventional systems for plant disease detection and fertilizer recommendation often rely on human expertise, which can be time-consuming. This study proposes a system for leaf disease detection and fertilizer recommendation using the convolutional neural network algorithm. The system is designed to help farmers identify plant diseases early and provide them with the appropriate fertilizer recommendations to improve crop yield. The CNN algorithm is used for image classification to detect diseases in plant leaves and recommend the appropriate fertilizer based on the identified disease. The proposed system was tested on a dataset of plant leaf images and achieved a high accuracy rate in disease detection and fertilizer recommendation. We propose a system for leaf disease detection and fertilizer recommendation using the CNN algorithm. The system is designed to assist farmers in identifying plant diseases and providing them with the appropriate fertilizer recommendations to improve crop yield. In the hardware section, we have an Arduino Uno controller as the heart of the project, a DHT11 sensor to measure temperature and humidity, a Ph sensor to measure the quality of water, and asoil moisture sensor can be used to measure soil humidity. Here we used one water pump. These pump will turn on upon getting value from the AI section, and the sensor data is continuously monitored by the Blynk (Android) application through the IOT (Internet of Things).

ICMCTTAP158

Intelligent Lung Cancer Detection: A Genetic Algorithm Machine Learning Fusion

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ABSTRACT

Early detection of lung cancer is crucial for improving patient outcomes. While Deep Learning (DL) models have shown high accuracy in lung cancer diagnosis, they often require substantial computational resources. This study proposes a novel approach that leverages Genetic Algorithm (GA) to optimize feature selection and dimensionality reduction from lung cancer images. By integrating GA with conventional Machine Learning (ML) models, we demonstrate improved classification accuracy while minimizing computational requirements. Our experimental results show that combining GA with a feed-forward neural network classifier yields exceptional performance, achieving a classification accuracy of 99.70%. This approach offers a promising alternative to DL models for lung cancer detection, particularly in resource-constrained settings.

Keywords— Machine Learning, Image Classification, Genetic Algorithm, Deep Learning.

ICMCTTAP159

Innovations in Smart Wearable Technology: Trends, Applications, and Future Directions

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ABSTRACT

The advent of smart wearable technology has revolutionized the integration of digital intelligence with daily life, reshaping industries such as healthcare, fitness, fashion, and entertainment. This paper explores recent innovations in smart wearables, highlighting key trends, diverse applications, and potential future developments. Current trends emphasize miniaturization, energy efficiency, seamless connectivity, and enhanced user experience, driven by advancements in materials science, sensor technology, and artificial intelligence. Applications span from health monitoring and disease management to immersive gaming and augmented reality experiences, with significant impacts on personal productivity and quality of life. Examining the emerging challenges, including data security, device interoperability, and ethical considerations related to privacy. By synthesizing insights from academia and industry, this paper aims to provide a comprehensive understanding of the transformative potential of smart wearable technology and its implications for a connected and sustainable future.

Keywords: Wearable Technology, AI in Wearables, Health Monitoring sensors, Flexible Electronics

ICMCTTAP160

Performance Comparison of Machine Learning Algorithms for Wind Energy Forecasting in the Coastal Region of Kerala

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ABSTRACT

This paper presents the details predicting wind energy output with machine learning models. Accurate forecasts of wind power's future are essential to the feasibility of major renewable energy projects. Making precise forecasts of wind power generation requires accounting for changes in weather patterns over time. This is also essential for issuing early warnings and implementing risk-reduction measures. In this study, prediction models for wind energy are developed using wind data collected at coastal region in Kerala. Accurate forecasting of wind power generation is necessary to balance supply and demand in the smart grid. Here, a unique machine learning-based approach is provided that provides a thorough understanding of resource use by mapping long-term meteorological data to renewable power generation. Models including XGBoost, LASSO, Gradient Boosting, Random Forest, Bayesian Ridge Regression networks are employed to predict the wind power

Keywords: XGBoost, LASSO, Gradient Boosting, Random Forest, Bayesian Ridge Regression

ICMCTTAP161

Eco-Friendly Cinematic Practices: The Sustainable Use of Film Costumes

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ABSTRACT

Despite being a potent vehicle for pleasure and cultural narrative, the cinema industry is linked to serious environmental problems. One of the most important but little-studied of these is the lifetime of cinematic costumes, from creation and production to disposal. Costumes frequently produce a lot of garbage and need resource-intensive procedures. With an emphasis on tactics like upcycling, rental systems, the use of eco-friendly materials, and the incorporation of digital technology, this study explores sustainable methods in the creation, manufacture, and reuse of film costumes. The industry may strike a balance between creativity and environmental responsibility by incorporating the concepts of the circular economy into the creation of costumes, providing a model for environmentally conscientious filmmaking.

Keywords: Film Costume, Environmental Impact, Circular Economy, Sustainability, Upcycling, Technology, Eco-Friendly Materials, Waste Reduction, Resource-Intensive Processes And Ecologically Responsible Filmmaking.

ICMCTTAP162

Optimisation of the Growth Media Parameters Using Food Waste for the Production of Biodiesel from Chlorella Vulgaris

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ABSTRACT

Biodiesel being increasingly considered in transition towards sustainable transportation fuel, has intensified the research on biodiesel from diverse feedstocks. With many edible and non-edible oil sources being investigated for their potential for biodiesel production, vegetable and fruit peels, discarded as food waste, offers an abundant and underutilized feedstock for biodiesel production. Bioprocessing of these organic rich waste for biodiesel production presents a dual-purpose approach, addressing both waste volarization and renewable energy generation, strongly contributing to a circular economy. The study investigates on acclimatizing the microbial strain, *Chlorella vulgaris* to different media to optimize lipid production and subsequently, the oil extraction to produce biodiesel.

The microalga *Chlorella vulgaris*, when subjected to acclimatization studies using different media showed that the algae exhibited the highest growth efficiency when cultured in plantain waste derived media. The algae were harvested and the lipid is extracted using Soxhlet extraction. This is followed by a two-step biodiesel production process comprising esterification and transesterification reactions. With the outcome of the study showing promising results, the research highlights the technical feasibility and environmental benefits of utilizing agricultural waste as a substrate for microalgal-based biodiesel production, presenting a viable solution for renewable energy generation.

Keywords: Biodiesel, Chlorella Vulgaris, Food Waste Volarization

ICMCTTAP163

Brain Tumor Detection Using Deep Learning

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ABSTRACT

Brain tumors are among the most lethal and challenging conditions to diagnose and treat due to their complex nature and variability in presentation. Traditional methods of brain tumor detection, such as MRI and CT scans, rely heavily on the expertise of radiologists and can be time-consuming and prone to human error. Early detection of the disease may reduce the mortality rate and help in proper medical planning. Early detection plays a critical role in managing diseases, particularly chronic and life-threatening conditions like cancer, cardiovascular diseases, and diabetes. Identifying diseases at an early stage increases the likelihood of successful treatment, improves survival rates, and can significantly reduce healthcare costs.

In recent years, deep learning techniques have emerged as a powerful tool for medical image analysis, offering the potential to automate and enhance the accuracy of brain tumor detection.

The integration of deep learning, a subset of artificial intelligence, into medical imaging has significantly enhanced the accuracy and efficiency of brain tumor detection. The high accuracy and robustness of deep learning techniques suggest its potential for clinical application, providing radiologists with a reliable tool to assist in the early diagnosis and treatment planning of brain tumors, also paper discusses the challenges and limitations of current techniques available.

This review paper presents a comprehensive overview of types of brain tumor, recent advancements in deep learning techniques for brain tumor detection, focusing on various techniques, datasets, evaluation metrics, and the challenges associated with their application in clinical settings.

Keywords: Brain Tumor, Current Trends, Deep learning, Medical Imaging, MRI, CT Scans.

ICMCTTAP164

Experimental Analysis of Aluminium-Silicon Carbide Composites for Enhanced Mechanical Properties

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ABSTRACT

Metal Matrix Composites (MMCs) exhibit significantly enhanced properties, including high specific strength, specific modulus, damping capacity, and superior wear resistance compared to unreinforced alloys. The demand for composites incorporating low-density and cost-effective reinforcements has grown steadily. Aluminium Metal Matrix Composites (AMMCs) have emerged as a promising class of advanced materials. Key parameters such as surface roughness and wear behaviour are critical for the design and optimization of composite structures. MMCs have gained significant traction in aerospace, electrical, electronics, and automotive industries due to their exceptional properties and diverse applications. In this study, aluminium 6061 matrix composites are reinforced with silicon carbide (SiC) to enhance conductivity and mechanical properties, including hardness, tensile strength, and wear resistance. Aluminium 6061 composites with SiC particles (5%, 10%, and 15%) were fabricated using the stir casting method. The Taguchi method, combined with Analysis of Variance (ANOVA) via MINITAB-17 software, was applied to evaluate the influence of machining parameters on composite percentage, wear load, and sliding velocity. Mechanical properties such as hardness, tensile strength, wear resistance, and microstructural characteristics were thoroughly analysed and investigated.

Keywords: Aluminium 6061, SiC, MMC, ANOVA, Composite Material

ICMCTTAP165

Intrusion Detection System using ANN

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ABSTRACT

This paper proposes an advanced Intrusion Detection System (IDS) for IoT-based smart cities, utilizing Artificial Neural Networks (ANN) to enhance the detection of network anomalies with a 99% accuracy rate. Compared to CNN and LSTM-based models, this system introduces a multi-classifier capable of identifying five key network attacks: Denial of Service (DoS), User to Root (U2R), Remote to Local (R2L), Probe, and Other attacks. The IDS integrates with a user-friendly web application for real-time anomaly detection, attack type identification, and actionable preventive measures. The proposed model's superiority is demonstrated on the benchmark KDD Cup 1999 dataset, achieving significant advancements in classification accuracy and response time. This work contributes to securing IoT ecosystems by offering a scalable and reliable solution for smart city cybersecurity.

Keywords: Anomaly Detection, Artificial Neural Network, Cybersecurity, Intrusion Detection System, IoT.

ICMCTTAP166

Sustainable Tourism in Latehar: Balancing Adventure, Culture and Heritage

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ABSTRACT

Sustainable tourism simply means fulfilling the current needs without compromising the needs of the future. It is a broad concept encompassing the social, economic, environmental and cultural aspects. Jharkhand is one of the beautiful states with rich culture, heritage and alluring nature including rolling hills, exotic and ear soothing waterfalls, serene views etc, truly embodying the name 'Jharkhand' which means 'the land of forests.'

Latehar is one of such districts in Jharkhand which is emerging as a tourist destination. It offers a blend of rich culture, heritage and a thrilling adventure which are one of the most desirable aspects for the tourists. This district is home to fascinating historical sites and vibrant traditions i.e; from witnessing and admiring the historical sites to enjoying and experiencing the lively local events, making this place more remarkable. But it doesn't end here, as per the India state of forest report 2021, 56% of the geographical area of Latehar is covered with of forest hence, offering lush green forest, a great deal of adventure, and countless opportunities for outdoor activities. This unique blend makes Latehar an appealing destination. The place is in the early stage of tourism development, and it is still growing. Tourists are drawn here by the history, culture and the beauty, so by prioritizing sustainability, it will not only enhance the present experiences of tourists but also ensure tourism to thrive for long years hence, whether the tourism growth is in initial stage or in growing stage, sustainable tourism should not be ignored.

This paper sheds light on the adventures, cultures, and heritage of Latehar. Adventures like outdoor camps, bird watching, trekking, closely observing the wildlife and so on. If we talk about the culture, it has distinctive culture, these cultures are mostly based on nature or agriculture like tusu parab, jawa, sarhul and so on, the distinctive cuisine also attracts the tourists like pitha, dhuska, handia, chilka roti,rugra etc. futher moving towards heritage , Latehar had very intresting history which led to establishment of the old Palamu Fort, new Palamu Fort and Navagarh Fort. These are the gems of Latehar.

Keywords: Sustainable Tourism, Adventure, Culture, Heritage, Tourist

ICMCTTAP167

Stree Nidhi – A Role Model in Digital Lending to SHGs W.R.T the State of Telangana

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ABSTRACT

India is witnessing renewed focus on cooperative structure with GOI laying more emphasis on this sector. This would give a fillip to institutions like Stree Nidhi which are functioning under the ambit of State Cooperative Societies Act'1964. In different times, different institutions emerge to meet requirements for development. With full conviction it can be stated that Stree Nidhi is such an institution emerged in times of need, growing from strength to strength in service of Self Help Groups (SHGs) and their federations both in rural and urban areas of the State of Telangana. This paper focuses on how Stree Nidhi model in the state of Telangana became the role model for other states in their seamless financial services to poor women organized into SHGs at their doorsteps on all the days at all the times.

Keywords: Stree Nidhi, Self Help Groups (SHGs), Financial Services, Telangana

ICMCTTAP168

Driver Drowsiness Detection System for Accident Prevention

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ABSTRACT

The abstract highlights the importance of driver drowsiness detection as a critical component of vehicle safety technology, with the goal of preventing accidents brought on by drowsy drivers. According to studies, driver fatigue possibly a factor in 20% of traffic accidents, underscoring the importance of developing efficient accident-avoidance strategies. The research focuses on a particular illustration of an automated tiredness detection system intended to improve driver safety by tracking unsafe driving practices. The primary objective of the research is to develop an automated system capable of accurate analysis the blink patterns of the driver's eyes. It detects modifications to the distance between the eyes and reflects eye blink events using an infrared-based eye blink sensor. The location of the visual is indicated by the sensor's output, which is high when the eye is closed and low when it is open. The project includes a circuit that, in the event that it detects indicators of tiredness, such closed eyes, while driving, sounds an alarm, namely a buzzer next to the driver. By offering a real-time alarm mechanism, this technology seeks to address the risks related to driver weariness and enhance overall road safety.

Keywords: Driver Drowsiness Detection, Infrared-Based Eye Blink Sensor, Blink Patterns, Real-Time Alarm Mechanism, Automated System.

ICMCTTAP169

Arima Model for Gold Price Prediction

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ABSTRACT

Despite increases in 2017 and 2018, the price of gold has been stagnant globally since 2013. The price volatility of gold will significantly influence how people, businesses, and nations choose to invest. This study focuses on the World Gold Council's data for gold prices from Jan 2018 to Feb 2023, and it uses the ARIMA model to forecast and analyze the daily Indian rupee (per ounce) gold price for the month of Feb 2023. The accuracy of models is also estimated in this study using AC, PAC, and BIC. Results from experiments show that ARIMA (4,1,4) is the best model for predicting the Indian price of gold (National Currency Unit per troy ounce). For consumers to comprehend the effectiveness of gold prices and make wise investment decisions, the estimate outcomes of the ARIMA Model are essential.

Keywords: ARIMA Model; Forecast; Gold Price

ICMCTTAP170

Assessment of Government Schemes and Programs provided for Promoting Sericulture in Rural Jharkhand: A Geographical Study

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ABSTRACT

Sericulture has a lot of potential for rural Jharkhand and can give marginalized groups—women in particular—a steady source of income. The state is ideal for producing silk because of its traditional expertise and ideal agro climatic conditions. Encouraging sericulture can improve rural livelihoods, lower poverty, and boost the economy of Jharkhand's regions with little development.

This paper investigates how well government programs and policies support sericulture as a viable source of income in rural Jharkhand. Sericulture has long been acknowledged as a sustainable source of income, especially for underserved populations, and its growth has been greatly aided by government initiatives. The study assesses the degree to which these programs have influenced sericulture's growth and its contribution to enhancing rural livelihoods using secondary data analysis.

The results show that although government initiatives have been successful in promoting consciousness and comprehension of sericulture, there are still major obstacles to overcome. Its full potential is nevertheless hampered by inadequate infrastructure, restricted access to funding, and weak market ties. The study emphasizes the necessity of focused interventions addressing these obstacles in order to guarantee sericulture's sustainability as a means of subsistence. The research's recommendations are intended to help authorities improve sericulture promotion strategies and build rural Jharkhand's economic resilience.

Keywords: Sericulture, Government Initiatives, Rural Livelihoods, Sustainability

ICMCTTAP171

AI-Driven Adaptive Wireless Coverage for Resilient Communication in Variable Weather with Umbrella Networks

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ABSTRACT

Weather-induced challenges such as rain fade, fog, and wind significantly impact wireless communication systems, necessitating innovative solutions to maintain reliable connectivity. This paper presents **"Umbrella Networks"**, a novel AI-driven framework for adaptive wireless coverage under varying weather conditions. Leveraging advanced machine learning models, including supervised regression, unsupervised clustering, and reinforcement learning, the framework dynamically optimizes network parameters such as power control, frequency switching, and beam forming. Case studies highlight the impact of adverse weather on wireless communication and demonstrate how AI techniques mitigate these effects. The integration of this adaptive approach with emerging technologies like 5G, satellite communication, and IoT is discussed, alongside challenges in deployment. Comparative analyses between AI-based and traditional adaptation methods reveal substantial improvements in coverage and resilience. Applications in disaster management, smart cities, and agriculture underscore its transformative potential. This work paves the way for resilient, weather-adaptive wireless communication systems.

Keywords: AI, Wireless Networks, Weather Adaptation, Dynamic Signal Adjustments, Network Optimization, 5G, IoT

Smart Sensors Based Vehicle Safety with Auto Alert Using Wireless Network

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ABSTRACT

A major contributor to accidents is alcohol, and shift workers, business drivers, and truck drivers are the most susceptible to dozing off while operating a motor vehicle. Along with putting lives in danger, these problems put a heavy financial strain on business owners, who are held responsible for these kinds of accidents. In this research, a mobile application-integrated adaptive driver and business owner alert system for tracking driving behaviors is presented. Utilizing a variety of sophisticated sensors, the system detects drunkenness, tiredness, and seat belt usage. If the driver engages in risky behaviors, such as failing to buckle up, displaying indications of exhaustion, or drinking alcohol, a buzzer is activated to warn others. The system employs GPS and GSM modules to communicate the location of the car to the designated individual, and the motor is deactivated if crucial thresholds are crossed. By proactively tackling the main causes of serious crashes, this system, which is controlled by a Cortex M3 microprocessor, provides a complete strategy for lowering accidents, injuries, fatalities, and property damage.

Keywords: Driver Alert System, Drowsiness Detection, Alcohol Detection, GPS Tracking, Road Safety, Accident Prevention.

IoT Based Security Alert System for Vehicles

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ABSTRACT

According to the National Crime Records Bureau (NCRB), just 32,826 of the 122,367 two-wheelers that were stolen in India in 2011 were recovered, indicating that vehicle theft has become more common. Police and owners have little options when cars are taken from parking lots or streets and swiftly hidden, disassembled, or sold in nearby areas. In order to prevent theft and improve safety, this study suggests a cutting-edge car security system that combines GPS and GSM technology. In the event of theft or an accident, the system uses GPS to track the location of the car and GSM to send alerts. Other features include a paint spray system to identify and discourage thieves, an electric shock mechanism on the steering wheel, and cutoffs for the ignition and gasoline supply. The technology ensures immediate assistance in the event of an accident by providing the GPS coordinates and car number to the local police and the owner's family. This all-encompassing strategy prioritizes human life and improves vehicle security by providing quick responses in an emergency.

Keywords: Vehicle security, GPS tracking, GSM communication, Theft prevention, Accident alert system, Ignition cutoff.

ICMCTTAP174

Blood Group Prediction Using Fingerprint

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ABSTRACT

A crucial part of medical diagnostics is blood group detection, which is typically done using serological techniques. Novel approaches to non-invasive blood group detection have been made possible by recent developments in computer vision and machine learning. The usefulness of Convolutional Neural Networks (CNNs) for blood type identification from fingerprint photographs is investigated in this paper. Biometric fingerprints are distinct identifiers that have the ability to encode biological data, such as blood type. The suggested approach entails gathering a varied dataset of blood group-related fingerprint pictures. Using this information, a CNN model is created and trained to identify patterns and characteristics typical of various blood groups. To find the best accurate and computationally efficient model, a variety of CNN topologies are compared. Metrics including accuracy, precision, recall, and F1-score are used to evaluate the CNN model's performance. According to preliminary findings, the CNN-based strategy can attain impressive accuracy levels, offering a competitive substitute for conventional blood group identification techniques. Enhancing the model's accuracy, growing the dataset, and resolving any potential privacy and ethical issues with the use of biometric data will be the main goals of future study. This work is a groundbreaking step toward the medical diagnostics industry's integration of biometric data with cutting-edge machine learning algorithms.

Keywords: Blood Group Detection, Noninvasive Diagnostics, Convolutional Neural Network (CNN), Fingerprint analysis, Biometric Identification.

ICMCTTAP175

Unmasking Polymorphic Malware and its detection Techniques: A Review

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ABSTRACT

Polymorphic malware poses a significant challenge to cybersecurity due to its ability to dynamically alter its code structure while preserving its malicious functionality. This review paper comprehensively explores the landscape of polymorphic malware, examining its evolution, characteristics, and impact on digital systems. It delves into the intricate mechanisms employed by polymorphic malware to evade traditional detection methods, including code obfuscation and encryption techniques. Furthermore, the paper provides an analysis of state-of-the-art detection mechanisms and approaches, ranging from signature-based techniques to heuristic and machine learning-based methods. Through a critical evaluation of existing research, this review highlights the strengths, limitations, and emerging trends in polymorphic malware detection. By synthesizing knowledge from diverse sources, this paper aims to offer insights that contribute to the ongoing efforts in developing robust defences against the ever-evolving threat of polymorphic malware.

Keywords: Polymorphic Malware, Cybersecurity, Code Obfuscation, Encryption, Detection Methods, Machine Learning, Threat Analysis, Evasion Mechanisms, Digital Systems, Robust Defences.

END

Thank You