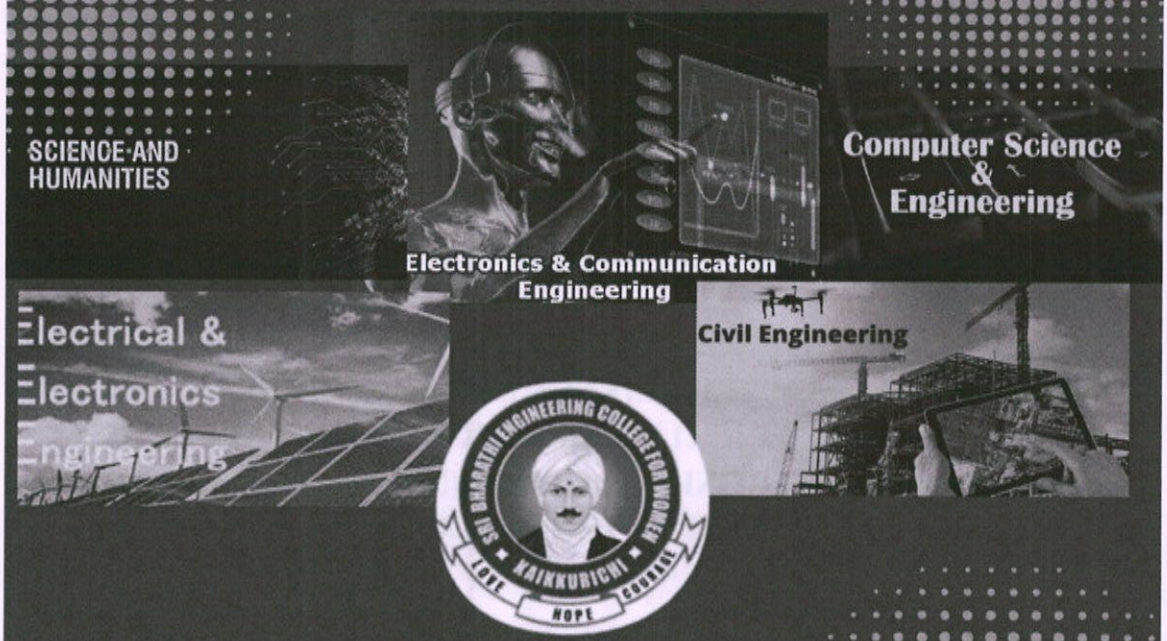
NATIONAL CONFERENCE
ON
RECENT INNOVATIONS IN SCIENCE, ENGINEERING AND TECHNOLOGY
(NCRISET-2019)

02.03.2019

PROCEEDINGS



SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
KAIKKURICHI (PO), PUDUKKOTTAI - 622 303
sribharathienggcollege@gmail.com
www.sbec.edu.in

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

ABOUT US

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN (SBECW) the first college started one and only for women's higher education in Pudukkottai District, is named after the famous poet and freedom fighter, Bharathiyar, as the fought for women's freedom. This college started by "Sri Bharathi Educational Trust", in the year 2009 in a rural area of Pudukkottai District which is dedicated for the entire development of education, training and to face the society with positive deportment for women and to serve for the upliftment for the society.

SBECW is located about 6KM away from Pudukkottai. The Mission and Vision of this Institution is to inspire and educate young minds to grow with the principles of Truth, Obedient, Honor, Purity, Integrity and Obedience for their enlightment.

The Destiny of our Nation lies in the hands of children. They should be molded and shaped by proper education. We take care in educating the children to know their responsibilities towards their elders, poor & down trodden people. Apart from education our motto is to train the children to become good citizens of India in all aspects.

Our Institution offers five under graduate programmes in various disciplines,

- **B.E. - CIVIL ENGINEERING**
- **B.E. - COMPUTER SCIENCE & ENGINEERING**
- **B.E. - ELECTRICAL & ELECTRONICS ENGINEERING**
- **B.E. - ELECTRONICS & COMMUNICATION ENGINEERING**
- **B.Tech. - INFORMATION TECHNOLOGY**

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Sri Bharathi Engineering College for Women

(Affiliated to Anna University, Chennai)

KAIKKURUCHI, PUDUKOTTAI – 622 303.

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ACADEMIC YEAR 2018 – 2019

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PREFACE

Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai has organized a "National Conference on Recent Innovations in Science, Engineering and Technology (NCRISET-2019)" and conducted by the Departments of Civil, Computer Science & Information Technology, Electrical and Electronics Engineering, Electronics and Communication Engineering. We feel swollen with pride and fortunate enough to systematize NCRISET-2019 on 2nd March 2019.

The field of Engineering while looking back to the origins of the history, the contributions where astonishing as well as they stand wonders to exhibit for our age. Due to the wide expansion of the knowledge as well as the population growth, the field of engineering has to spread over a wide spectrum. This has resulted in multi various aspects in the field of engineering and requires specialization in each of the field. Now living through the current age, specialization in a particular field alone will not be helpful.

In such a condition integration of multi various activities of engineering will alone fulfill the requirements of the high-tech modern world and in the days to come. As a fore thought and also to bring out the talents of the students of the various fields of engineering into one point of confluence to understand better and this is a joint venture for this Educational Institution also. We hope very much that such an effort will definitely give raise to a modern world through fulfillment of technologies with inter disciplinary applications.

Our conference aims to integrate the various engineering disciplines and we feel our aim is fulfilled and now we are encouraged by more number of research scholars, academicians and industrialists through their proposals in the form of their full research papers going to be presented at this conference. We have received 263 papers from distinguished and multi-disciplinary engineering domains such as Civil, Electrical, Electronics and Information Technology and Computer Science. Our Technical Core committee short listed those papers into 223 in numbers through an optimum quality policy in selection from those 263 papers.

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All those selected papers are to uplift the objectives of the conference and to interlink the multi-disciplinary engineering domains with a fore thought to achieve a new generation of engineers with an inter-disciplinary understanding.

My sincere thanks to the respected Chairman cum Managing Director, **Thiru. G.Dhanasekaran** Sri Bharathi Educational Institutions who is the main root for the cause of this National Conference and our thanks to the Secretary, **Mr. L. Dawood Gani** and our thanks to the Correspondent **Er. N. Kanagarajan** and also all the Trust members who have shouldered the organizational role.

I feel my immense pleasure to thank our Patron **Dr. S. Thilagavathi, M.E., Ph.D.,** and Principal for giving me this great opportunity for this National Conference NCRISET-2019.

My sincere thanks to Chief Advisor of this conference **Thiru. A. Krishnamoorthy**, Administrative Officer and Institutional Publisher, SBECW, Pudukkottai.

I feel my jubilant thanks to all committees especially for Advisory committee, Technical committee and Editorial and Printing committee. I am gratified to the members of NCRISET-2019, judges of various session, participants of multi-disciplinary.

I also feel my triumphant delight to all delegates, faculties and non-teaching faculty members of SBECW, supportive staff of NCRISET-2019 and finally I am very grateful to the scholars of SBECW.

March 2, 2019,
Kaikkurichi.

Convener: NCRISET-2019,
Mrs. R. Yogeshwari, Asst. Professor,
Department of Electronics and Communication Engineering,
Sri Bharathi Engineering College for Women,
Kaikkurichi, Pudukkottai.

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ABOUT THE CONFERENCE

This National Conference on Recent Innovations in Science, Engineering and Technology (NCRISET-2019) plays an imperative role in meeting demands of the society and taking the illumination of acquaintance to the depth of obscurity, uplifting the embarrassed by providing the education to the society. This conference will enable under graduate, post graduate, Research scholar, Faculties and Industrial Participants from the various streams of engineering to interact the people and making then bend with the society and awareness about multi-disciplinary fields.

"A unity in diversity" is the normal slogan that is known to most of the Indian Citizen. The Constitution, Government, Law and the basic human rights are all unified irrespective of its diversified regional, religious, linguistic and cultural habitual of the Indian people, does not stand in the way of the unity of Indians. If the country is so, why not we, the engineers who are the pillars of the monumental structure shall unite and hold the nation's pride. The diversified fields are only various parts of the body. The function of a human being is only on united action of the various parts of the body. For anything and everything we need a building or structure with all amenities. For that we require invariably the services of engineers of various disciplines all that we know. As a matter of fact, we are supposed to find out a solution oby finding a way for inter connecting the activities of various disciplines. As the first step, as the Armstrong set his foot on the moon, a proposal for conducting a national conference of this nature is formulated.

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Thiru. G. Dhanasekaran, M.A., M.Com., M.Phil.,
Chairman and Managing Trustee,
Sri Bharathi Group of Institutions,
Kaikkurichi, Pudukkottai – 622 303.

MESSAGE

It gives me immense pleasure to know that the Departments of CIVIL, ECE, EEE, CSE, and IT of Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai is organizing a "National Conference on Recent Innovations in Science, Engineering and Technology (NCRISET-2019)" on 2nd March 2019.

This conference will sharpen the intellects of the Faculty members and students of this 10 years old Institution and will enlighten the participants with latest trends in Multi-Disciplinary Engineering Domain.

My appreciation and congratulations are due to the faculty members and students for their excellent contribution to the academic growth of this Technical Institution, started exclusively for the benefit of women students of rural areas.

I extend my warm greeting to the Principal, Staff and the participants to this occasion.

"When aims are high and efforts are superfluous,
Production and outcome will be a great success"

I wish the conference a great success.

Thiru. G. Dharasekaran,
Chairman & Managing Trustee

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Mr. L. Dawood Gani,
Secretary,
Sri Bharathi Group of Institutions,
Kaikkurichi, Pudukkottai – 622 303.

MESSAGE

I am happy to note that a "National Conference on Recent Innovations in Science, Engineering and Technology (NCRISET-2019)" is being organized by various Departments of Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai on 2nd March 2019. It is interesting to know that a Souvenir is also being released on this occasion.

This conference will provide an excellent platform for the Faculty members & Research Scholars for exchanging their ideas and experiences for the benefit of the students.

I congratulates the Principal & Faculty members of the Departments of CIVIL, ECE, EEE, CSE & IT for organizing the conference.

"Creativity is a must to shine in this competitive world
Conference is the best way to reach that Paradise"

I wish the conference a great success.

Mr. L. Dawood Gani,
Secretary

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Er. N. Kanagarajan,
Correspondent,
Sri Bharathi Group of Institutions,
Kaikkurichi, Pudukkottai – 622 303.

MESSAGE

I am very pleasure to inform you that the "National Conference on Recent Innovations in Science, Engineering and Technology (NCRISET-2019)" is being organized and conducted by the various Departments CIVIL, ECE, EEE, CSE & IT of Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai on 2nd March 2019.

This conference will provide an excellent platform for the Faculty members & Research Scholars from various parts of the state and country for exchanging their ideas and experiences for the benefit of the students.

I congratulates the Principal & Faculty members of the Departments of CIVIL, ECE, EEE, CSE for organizing this national conference NCRISET-2019.

I wish this conference for a great success.

Er. N. Kanagarajan,
Correspondent

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Dr. S. Thilagavathi, M.E., Ph.D.,
Principal,
Sri Bharathi Engineering College for Women

MESSAGE

It is a great pleasure for me as a dream has been translated into reality in organizing a "National Conference on Recent Innovations in Science, Engineering and Technology (NCRISET-2019)" in our Fifteen years old college on the most auspicious day of 2nd March 2019. I strongly believe that this conference provides a platform for the participants of various disciplines to disseminate, share and exchange their ideas. I promise that Sri Bharathi Engineering College for Women will serve as a grooming ground for new generation of women leaders to exhibit their talents on research through this national conference.

I take this opportunity to sincerely that the management of our college for encourage financially supporting and extending tall the cooperation in organizing this Fourth National Conference on Cutting Edge Technologies in Science and Engineering in our campus. I would like to place on record my whole hearted appreciating for all the members of the various committees for their untiring efforts put in to make this conference a splendid one. It is hoped that the participants will have a pleasant stay in the campus during the conference period and carry the message of the conference for the benefit of large section of students spread over different institutions. The college will be conducting many more programs in the years to come with continued support from the management and with encouragement received from all the participants. I also thank the principals of other colleges for motivating their faculty and students to submit papers.

I wish the conference a grand success.

Dr. S. Thilagavathi
Principal

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1. Title: Enhancing English Language Skills: Strategies for Comprehensive Proficiency

[1]Mr.S. Ramesh Raja, [2] Ms.S.Anuhsa, [3]Ms.N.Asmath Hazeena.
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research delves into effective strategies for enhancing English language skills, including vocabulary, grammar, reading, listening, and speaking. It examines the role of context-based learning, interactive activities, and authentic materials in language development. The study also explores the significance of cultural awareness and critical thinking in fostering well-rounded language proficiency. By incorporating a multidimensional approach, this research aims to provide educators and learners with practical tools to achieve comprehensive language competence.
Keywords: English language skills, vocabulary, grammar, reading, listening, speaking, context-based learning, interactive activities, authentic materials, cultural awareness, critical thinking, language competence.

2. Title: Technology-Driven English Language Skills: Maximizing Digital Resources

[1]Mr.S. Ramesh Raja, [2] Ms.P.Muthumeena, [3]Ms.C.Chandrika
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CIVIL, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This study focuses on leveraging technology to enhance English language skills. It explores the use of language learning apps, online resources, and virtual communication platforms to foster vocabulary acquisition, reading comprehension, and speaking fluency. The research investigates the benefits and challenges of integrating technology in language education, aiming to equip educators and learners with insights to harness the full potential of digital resources.
Keywords: Technology-driven, English language skills, language learning apps, online resources, virtual communication platforms, vocabulary acquisition, reading comprehension, speaking fluency, language education.

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3. Title: Cultivating Effective English Writing Skills: From Draft to Refinement

[1]Mr.S. Ramesh Raja, [2] Ms.A.Bavadharani, [3]Ms.C. Kavya.
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research emphasizes the development of effective English writing skills. It examines the writing process, from pre-writing techniques to drafting and revision. The study explores the importance of structure, coherence, and language proficiency in producing well-crafted written pieces. By providing practical guidance, this research aims to empower learners and educators in honing their writing capabilities.

Keywords: English writing skills, writing process, pre-writing techniques, drafting, revision, structure, coherence, language proficiency, written pieces, writing capabilities.

4. Title: Assessing English Language Skills: Validity and Reliability in Language Proficiency Measurement

[1]Mr.S.Ramesh Raja, [2] Ms.N.Vennila
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2]Asst. Prof., Dept. of English, Shanmuganathan Engineering College, Pudukkottai.

Abstract: This study critically evaluates the validity and reliability of English language skills assessment. It examines various assessment methods, such as standardized tests, performance-based evaluations, and self-assessment tools, to gauge their accuracy in measuring language proficiency. The research addresses the alignment of assessment measures with language learning objectives, providing valuable insights for educators and administrators in refining their evaluation practices.

Keywords: Assessing English language skills, validity, reliability, language proficiency measurement, standardized tests, performance-based evaluations, self-assessment tools, language learning objectives, evaluation practices.

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5. Title: Unlocking English Listening Comprehension: Strategies for Active Understanding

[1]Mrs.P. Alagumathi, [2] Ms.J.Thenmozhi, [3]Ms.R.Selsiya.
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2,3]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on strategies to unlock English listening comprehension. It investigates the role of active listening, note-taking techniques, and exposure to diverse accents and speech rates in improving listening abilities. The study explores the impact of multimedia resources and immersive experiences on language proficiency. By highlighting the significance of these techniques, this research aims to equip learners with the tools to become skilled and confident listeners.

Keywords: English listening comprehension, active listening, note-taking techniques, diverse accents, speech rates, multimedia resources, immersive experiences, language proficiency, confident listeners.

6. Title: Speaking Fluency in English: Nurturing Confident Oral Communication

[1]Mrs.P. Alagumathi, [2] Ms.C.Priyatharshini, [3]Ms.V.Priyatharshini.
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This study emphasizes the development of speaking fluency in English. It examines the importance of pronunciation, intonation, and natural expression in effective oral communication. The research explores the use of speaking activities, language exchange programs, and public speaking opportunities to foster fluency. By providing practical guidance, this research aims to empower learners in becoming confident and articulate speakers.

Keywords: Speaking fluency, English language, pronunciation, intonation, oral communication, speaking activities, language exchange programs, public speaking, confident speakers, articulate speakers.

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7. Title: English Language Skills for Academic Success: Preparing for Higher Education

[1]Mrs.P. Alagumathi, [2] Ms.C.Priyatharshini, [3]Ms.V.Priyatharshini.
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on English language skills for academic success, emphasizing preparation for higher education. It examines the language demands of academic tasks, such as research papers and presentations. The study investigates the role of academic vocabulary, critical thinking, and academic writing skills in higher education. The findings provide insights for learners aiming to excel academically in an English-speaking context.

Keywords: English language skills, academic success, higher education, academic tasks, research papers, presentations, academic vocabulary, critical thinking, academic writing skills, learners

8. Title: Pronunciation and Listening: The Interplay of Skills in English Language Learning

[1]Mrs.P. Alagumathi, [2] Mrs.S.Ammu
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2]Asst. Prof., Dept. of English, Mount Zion College of Engineering and Technology, Pudukkottai.

Abstract: This study explores the interplay of pronunciation and listening skills in English language learning. It examines the impact of accurate pronunciation on listening comprehension. The research investigates the use of phonetic drills and authentic listening materials to improve pronunciation and listening abilities. The findings contribute to effective oral communication in English.

Keywords: Pronunciation, Listening skills, Communication, listening comprehension

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9. Title: Speaking Fluency in English: Strategies for Developing Oral Communication Skills

[1]Mr.S.Ramesh Raja, [2]Ms.S.Srividhya, [3]Ms.K.Umamaheswari
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CIVIL, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research explores strategies for developing speaking fluency and enhancing oral communication skills in English. It examines the importance of pronunciation, intonation, and fluency in effective spoken communication. The study investigates the use of speaking activities, conversation practice, and language exchanges to improve speaking proficiency. It also discusses the role of feedback, self-confidence, and cultural awareness in developing oral communication skills. The findings provide practical insights for learners and educators aiming to improve spoken English proficiency.

Keywords: Speaking fluency, oral communication skills, English language, pronunciation, intonation, speaking activities, conversation practice, language exchanges, feedback, self-confidence, cultural awareness, learners, educators

10. Title: The Impact of Technology on English Language Skill Development: Opportunities and Challenges

[1]Mr.S.Ramesh Raja, [2] Ms.K.Thaiyalnayagi, [3]Ms.M.Jeyasri
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This study examines the impact of technology on English language skill development. It explores the use of language learning apps, online resources, and digital tools in enhancing vocabulary, grammar, reading, listening, and speaking skills. The research investigates the benefits and challenges of incorporating technology in language learning classrooms. It also discusses the role of virtual communication, language exchange platforms, and adaptive learning systems in promoting English language proficiency. The findings contribute to the understanding of technology integration in language education.

Keywords: Technology, English language skill development, language learning apps, online resources, digital tools, vocabulary, grammar, reading, listening, speaking skills, virtual communication, language exchange platforms, adaptive learning systems, language education

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11.Title: Cultivating Critical Thinking Skills in English Language Education

[1]Mr.S.Ramesh Raja, [2] Ms.S.Agari, [3]Ms.K.Nisha
[1]Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on cultivating critical thinking skills in English language education. It examines the integration of critical thinking tasks, problem-solving activities, and argumentative writing in language classrooms. The study explores the role of questioning techniques, reasoning skills, and analysis of diverse perspectives in developing critical thinking abilities. It also discusses the challenges and benefits of incorporating critical thinking into English language instruction. The findings provide insights for educators seeking to foster critical thinking skills in language learners.

Keywords: Critical thinking skills, English language education, critical thinking tasks, problem-solving activities, argumentative writing, questioning techniques, reasoning skills, diverse perspectives, language learners, educators

12.Title: Residue Theorem: Analyzing Complex Contour Integrals and Singularities

[1]Mrs.N.Vithya, [2]S. Srividhya, [3]V.Maheshwari
[1]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[2, 3]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: The residue theorem is a powerful tool in complex analysis that enables the evaluation of complex contour integrals by utilizing the residues of meromorphic functions. This paper explores the residue theorem, its applications, and implications. The abstract provides an overview of the theorem's statement and proof, emphasizing the connection between the residue of a function and its integral around a closed contour. The paper discusses the significance of the residue theorem in solving complex integrals, particularly in cases involving singularities such as poles and branch points. It explores the applications of the residue theorem in various branches of mathematics and physics, including complex variable theory, signal processing, quantum mechanics, and fluid dynamics. Real-world examples and numerical demonstrations are presented to illustrate the practical utility of the residue theorem

Keywords: residue theorem, complex analysis, contour integrals, singularities, residues, meromorphic functions, complex variables theory, signal processing, quantum mechanics.

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13.Title: Analytic Functions: Properties, Applications, and Analyticity Criteria

[1]Mrs.M.Vanitha, [2]R.Atchaya, [3]K.Rohini
[1]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[2, 3]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Analytic functions play a fundamental role in complex analysis, offering a rich set of properties and applications in various mathematical and scientific fields. This paper explores the properties, applications, and analyticity criteria of analytic functions. The abstract provides an overview of the concept of analyticity, highlighting the key characteristics of functions that satisfy the Cauchy-Riemann equations. It discusses the properties of analytic functions, including their holomorphicity, power series representations, and the preservation of geometric transformations. The paper explores the applications of analytic functions in diverse areas, such as complex integration, potential theory, signal processing, and fluid dynamics. Real-world examples and numerical demonstrations are presented to illustrate the practical utility of analytic functions.

Keywords: analytic functions, complex analysis, properties, applications, analyticity criteria, holomorphicity, Cauchy-Riemann equations, power series, geometric transformations, complex integration, potential theory, signal processing, fluid dynamics, real-world examples, numerical demonstrations, singularities.

14.Title: Volume Integrals: Techniques and Applications in Three-Dimensional Space

[1]Ms.S.Poonguzhali, [2]Mrs.N.Vithya, [3]R.Ramana
[1, 2]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[3] UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Volume integrals are fundamental mathematical tools used to calculate the total volume of a region in three-dimensional space. This paper explores various techniques and applications of volume integrals. The abstract provides an overview of the concept of volume integrals, explaining their formulation in Cartesian, cylindrical, and spherical coordinate systems. It discusses the fundamental principles of integration, including the selection of appropriate coordinate systems and the determination of integration limits. The paper explores the applications of volume integrals in different fields, such as physics, engineering, and geometry, highlighting their significance in calculating quantities such as mass, center of mass, and moments of inertia.

Keywords: volume integrals, three-dimensional space, Cartesian coordinates, cylindrical coordinates, spherical coordinates, integration techniques, coordinate systems, integration limits, applications, physics, engineering, geometry, mass calculation, center of mass,

ISBN: 978-81-965236-6-4

15.Title: Higher Order Linear Differential Equations with Constant Coefficients: Analysis, Solutions, and Applications

[1]G.Ramya, [2]S.Akalaya, [3]T.Priya
[1, 2]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[3]UG Student Shanmuganathan Engineering College, Pudukkottai

Abstract: Higher order linear differential equations with constant coefficients are essential mathematical models that arise in various scientific and engineering applications. This paper provides a comprehensive analysis of such equations, exploring their properties, solutions, and practical applications. The abstract offers an overview of the general form of higher order linear differential equations with constant coefficients, highlighting the role of derivatives and the constant coefficients in the equation. The paper discusses methods for solving these equations, including characteristic equations, auxiliary equations, and finding particular solutions. It delves into the properties of solutions, such as linearity, superposition, and uniqueness, and explores the connection between the roots of the characteristic equation and the behavior of solutions.
Keywords: higher order linear differential equations, constant coefficients, characteristic equations, solutions, linearity

16.Title: Differential Calculus: Fundamental Concepts, Techniques, and Applications

[1]Ms.S.Poonguzhali, [2]Mrs.M.Vanitha, [3]N.Asmath Hazeena
[1, 2]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[3]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Differential calculus is a fundamental branch of mathematics that explores the concept of derivatives and their applications. This paper presents a comprehensive overview of the essential concepts, techniques, and applications of differential calculus. Beginning with the fundamental definition of a derivative and the concept of limits, we delve into various differentiation techniques, including the chain rule, product rule, and quotient rule. Additionally, we explore the significance of derivatives in analyzing the behavior of functions, optimization problems, and related rates. The paper also highlights the practical applications of differential calculus in various fields, such as physics, engineering, economics, and biology.
Keywords: Differential calculus, derivatives, limits, differentiation techniques, chain rule, product rule, quotient rule, function analysis, optimization, related rates, applications, physics, engineering, economics, biology, problem-solving.

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17.Title: Algebraic Systems: Unraveling the Foundations and Applications of Abstract Algebra

[1]Mrs.R.Dhanalakshmi, [2]G.Hema, [3]M.Nisha
[1]Asst. Prof., Dept. of Maths, Mahath Amma Institute of Engineering and Technology, Pudukkottai.
[2, 3]UG Student Mahath Amma Institute of Engineering and Technology, Pudukkottai.

Abstract: Algebraic Systems form the bedrock of Abstract Algebra, providing a powerful framework for studying mathematical structures with intrinsic operations. This paper delves into the fundamental concepts, properties, and applications of Algebraic Systems, shedding light on their role in unraveling the foundations of Abstract Algebra. Starting with a rigorous exploration of algebraic structures, such as groups, rings, and fields, we investigate the properties of these systems and their interconnections. The paper further investigates homomorphisms, isomorphisms, and substructures, elucidating how they preserve the algebraic properties and establish meaningful relationships between various structures.

Keywords: Algebraic Systems, Abstract Algebra, algebraic structures, groups, rings, fields, homomorphisms, isomorphisms, substructures, cryptography, coding theory, computer science, mathematical structures, foundations, applications.

18.Title: Unleashing the Power of Mathematical Analysis in Solving Complex Engineering Problems

[1]Mrs.M.Vanitha, [2]S.Suruthika, [3]S.Puviyarasi
[1]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[2, 3]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: "Unleashing the Power of Mathematical Analysis in Solving Complex Engineering Problems" is a comprehensive research paper that explores the critical role of calculus in the field of engineering. This paper highlights how the principles of calculus, including differentiation and integration, serve as powerful tools for modeling, analyzing, and optimizing complex engineering systems. Starting with the fundamentals of calculus, such as limits and derivatives, we demonstrate their applications in engineering disciplines like mechanics, electrical circuits, control systems, and structural analysis. Additionally, we delve into the significance of integral calculus in solving problems related to area, volume, and cumulative effects in engineering applications.

Keywords: Calculus, Engineering, Differentiation, Integration, Mathematical Analysis, Modeling, Mechanics, Electrical Circuits, Control Systems, Structural Analysis, Area, Volume, Computer Simulations, Engineering Applications, Complex Problems, Innovative Solutions.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

19.Title: Green's Theorem: Unraveling the Link between Line Integrals and Double Integrals

[1]Mrs.N.Vithya,[2] K.Thaiyal Nayagi ,[3]A.Arivarasi
[1]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[2, 3]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract:"Green's Theorem: Unraveling the Link between Line Integrals and Double Integrals" is a comprehensive research paper that explores the profound connection between line integrals and double integrals in vector calculus. This paper presents a thorough investigation of Green's Theorem, a fundamental result that establishes the relationship between circulation around a closed curve and the flux across a region in two-dimensional space. Starting with the theoretical foundations of line integrals and double integrals, we elucidate how Green's Theorem bridges the gap between these seemingly distinct mathematical concepts. The paper delves into the statement and proof of Green's Theorem, emphasizing its applications in diverse fields, such as fluid mechanics, electromagnetism, and conservation laws.

Keywords: Green's Theorem, Vector Calculus, Line Integrals, Double Integrals, Circulation, Flux, Two-dimensional Space, Fluid Mechanics, Electromagnetism, Conservation Laws, Divergence Theorem, Stokes' Theorem, Mathematical Concepts, Applications, Scientific Disciplines, Engineering.

20.Title: Differentiation Rules: Unraveling the Toolkit for Analyzing Functions in Calculus

[1]Mrs.M.Vanitha, [2]Mrs.N.Vithya, [3]M.Sathya
[1, 2]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[3]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract:"Differentiation Rules: Unraveling the Toolkit for Analyzing Functions in Calculus" is a comprehensive research paper that explores the essential toolkit of differentiation rules in calculus. This paper delves into the fundamental concepts of differentiation, presenting a thorough investigation of various rules and techniques used to analyze functions. Starting with the basic definition of derivatives and the concept of limits, we unveil differentiation rules such as the power rule, product rule, quotient rule, and chain rule. Additionally, the paper examines the application of differentiation in determining rates of change, identifying extrema, and sketching graphs of functions. Furthermore, we explore higher-order derivatives and implicit differentiation, expanding the toolkit for tackling more intricate functions and equations. The paper also highlights real-world applications of differentiation rules in physics, engineering, economics, and other scientific disciplines.

Keywords: Differentiation Rules, Calculus, Derivatives, Power Rule, Product Rule, Quotient Rule, Chain Rule, Rates of Change, Extrema, Graphs of Functions.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

21.Title: Cauchy's Integral Theorem: Unveiling the Deep Connections between Complex Analysis and Contour Integrals

[1]Mrs.N.Vithya, [2]K.Nisha, [3]R.Jeevitha
[1]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[2 3] UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract:"Cauchy's Integral Theorem: Unveiling the Deep Connections between Complex Analysis and Contour Integrals" is a comprehensive research paper that explores the profound relationship between Cauchy's Integral Theorem and contour integrals in complex analysis. This paper presents a thorough investigation of Cauchy's theorem, a fundamental result that establishes the link between the values of holomorphic functions and the closed contour integrals around their singularities. Starting with the theoretical foundations of complex analysis and contour integrals, we elucidate the significance of Cauchy's theorem in computing complex integrals and evaluating residues. The paper delves into the proof of Cauchy's theorem and examines its extensions, such as Cauchy's Residue Theorem.

Keywords: Cauchy's Integral Theorem, Complex Analysis, Contour Integrals, Holomorphic Functions, Singularities, Complex Integrals, Residues.

22.Title: Probability: The Mathematics of Uncertainty and Randomness

[1]Ms.R.Meenachi, [2]P.Raja, [3]N.Vignesh
[1]Asst. Prof., Dept. of Maths, Karaikudi Institute of Technology and Management, Karaikudi.
[2, 3]UG Student Karaikudi Institute of Technology and Management, Karaikudi.

Abstract: "Probability: The Mathematics of Uncertainty and Randomness" is a comprehensive research paper that provides an in-depth exploration of probability theory, the branch of mathematics that deals with uncertainty and random events. This paper starts with the fundamental principles of probability, including the concept of sample space, events, and probability measures. It delves into the axioms of probability and the rules for combining probabilities in different scenarios. The paper further investigates key probability distributions, such as the binomial, normal, and exponential distributions, and their applications in modeling real-world phenomena. Additionally, it explores fundamental concepts like conditional probability, independence, and Bayes' theorem, which are crucial for understanding probabilistic relationships and making informed decisions in various fields.

Keywords: Probability, Probability Theory, Uncertainty, Randomness, Sample Space, Events, Probability Measures, Axioms of Probability, Probability Distributions, Binomial Distribution, Normal Distribution,Exponential Distribution, Conditional Probability, Independence, Bayes' Theorem, Engineering Applications, Social Applications, Decision-Making, Problem-Solving.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

23.Title: Laplace's Theorem: Unraveling the Transformative Power of Complex Analysis in Solving Differential Equations

[1]Ms.S.Poonguzhali, [2]J.Rasmi, [3]S.Abirami
[1]Asst. Prof., Dept. of Maths, Sri Bharathi Engineering College, Pudukkottai
[2, 3]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract:"Laplace's Theorem: Unraveling the Transformative Power of Complex Analysis in Solving Differential Equations" is a comprehensive research paper that explores the profound impact of Laplace's theorem in solving differential equations through the transformative power of complex analysis. This paper delves into the theoretical foundations of Laplace transforms and their significance in converting differential equations into algebraic equations, facilitating their solution. Starting with the definition and properties of Laplace transforms, we elucidate the Laplace transform technique's versatility in handling a wide range of ordinary and partial differential equations. The paper further investigates the convergence and inversion of Laplace transforms, ensuring the applicability of this powerful tool in real-world problems.
Keywords: Laplace's Theorem, Complex Analysis, Laplace Transforms, Differential Equations, Algebraic Equations, Convergence, Inversion.

24.Title: Unraveling the Nature of Quadratic Forms

[1]Mrs.R.Sujatha, [2]K.Kalaivani, [3]P.Sindiya
[1]Asst Prof Dept of Maths KIT and KIM-Karaikkudi
[2, 3]UG Student KIT and KIM-Karaikkudi

Abstract: This research paper delves into the nature of quadratic forms, a fundamental concept in linear algebra and optimization. Quadratic forms are mathematical expressions that involve quadratic polynomials of several variables, and they have wide-ranging applications in various fields, including physics, economics, and statistics. The study aims to provide a comprehensive understanding of the properties and characteristics of quadratic forms, including positive definiteness, negative definiteness, and positive semidefiniteness. By exploring various examples and applications, readers will gain insights into how to unravel the nature of quadratic forms and analyze their behavior in different contexts. Additionally, this research highlights the practical significance of quadratic forms in diverse fields and showcases their impact on real-world problem-solving and analysis. By unraveling the nature of quadratic forms, learners can enhance their mathematical proficiency and leverage these concepts to understand complex systems and optimize various processes.

Keywords: Quadratic forms, linear algebra, positive definiteness, negative definiteness, positive semidefiniteness, mathematical analysis, applications, physics, economics, statistics, problem-solving.

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25.Title: Vector Identities: Unleashing the Power of Algebraic Relationships

[1] Ms.R.Divya, [2]Ms.S.Poonguzhali, [3]K.Jayasri
[1, 2]Asst Prof Dept of Maths Sri Bharathi Engineering College, Pudukkottai
[3]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper explores vector identities, a collection of powerful algebraic relationships that play a fundamental role in vector calculus and physics. Vector identities are mathematical equations involving vectors that allow for the manipulation and simplification of complex vector expressions. The study aims to provide a comprehensive understanding of various vector identities, including the dot product, cross product, and triple product identities. By examining diverse examples and applications, readers will gain insights into how vector identities can be used to solve problems in mechanics, electromagnetism, and other fields. Additionally, this research highlights the practical significance of vector identities in real-world problem-solving and showcases their impact on analyzing physical phenomena.

Keywords: Vector identities, algebraic relationships, vector calculus, dot product, cross product, triple product, mathematical analysis, applications, mechanics, electromagnetism, problem-solving.

26.Title: Harmonizing Complex Coordinates: Exploring Harmonic Conjugates

[1]Mrs.N.Umamaheswari, [2]P.Desika, [3]R.Puvinizha
[1]Asst Prof Dept of Maths Shanmuganathan Engineering College, Pudukkottai
[2, 3]UG Student Shanmuganathan Engineering College,, Pudukkottai

Abstract: This research paper delves into the concept of harmonic conjugates, a fundamental topic in complex analysis and mathematical physics. Harmonic conjugates are complex functions that play a crucial role in understanding harmonic functions, which satisfy Laplace's equation. The study aims to provide a comprehensive exploration of harmonic conjugates, their properties, and their significance in solving problems involving Laplace's equation. By examining various examples and applications, readers will gain insights into how harmonic conjugates harmonize complex coordinates and facilitate the analysis of physical phenomena governed by Laplace's equation. Additionally, this research highlights the practical significance of harmonic conjugates in diverse fields, such as electrostatics, fluid mechanics, and heat conduction. By exploring harmonic conjugates, learners can enhance their understanding of complex analysis and apply these concepts to analyze and model real-world phenomena.

Keywords: Harmonic conjugates, complex analysis, Laplace's equation, harmonic functions, mathematical physics, electrostatics, fluid mechanics, heat conduction, mathematical analysis, applications, problem-solving.

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27.Title: Crystal Growth and Defect Control: Strategies for High-Quality Crystalline Materials

[1]Mrs.R.Saratha, [2]Mrs.T.Renugadevi, [3]T.Jayapriya, [4]P.Manjuladevi
[1, 2]Asst. Prof., Dept. of Phy, Sri Bharathi Engineering College, Pudukkottai
[3, 4] UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: The controlled growth of high-quality crystalline materials is a crucial aspect of materials science and engineering. This paper focuses on the strategies and techniques employed in crystal growth for achieving high-quality crystals with minimized defects. The study explores various crystal growth methods, including melt growth, vapor deposition, solution-based techniques, and epitaxial growth, highlighting their advantages and limitations in defect control. It discusses the influence of growth parameters, such as temperature, pressure, and growth rate, on defect formation and crystal quality.

Keywords: Crystal growth, Defect control, Crystalline materials, High-quality crystals, Crystal growth methods, Melt growth, Vapor deposition, Solution-based techniques, Epitaxial growth, Growth parameters, Crystal defects, Crystal perfection,

28.Title: Magnetic Materials in Data Storage: Advancements and Future Prospects

[1]Mrs.R.Saratha, [2]Mrs.T.Renugadevi, [3]K.Umamaheswari, [4]P.Nagalakshmi.
[1, 2]Asst. Prof., Dept. of Phy, Sri Bharathi Engineering College, Pudukkottai
[3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Magnetic materials have been at the forefront of data storage technologies, facilitating advancements in data density, reliability, and performance. This paper reviews the role of magnetic materials in data storage systems, exploring their contributions to magnetic hard disk drives (HDDs), magnetic tapes, and emerging magnetic memory technologies. The study discusses the underlying principles of magnetic recording, including magnetization dynamics and magnetic switching mechanisms. It investigates the development of advanced magnetic recording media, such as perpendicular recording and heat-assisted magnetic recording (HAMR), to achieve higher areal densities and overcome superparamagnetic limitations. Additionally, the paper examines the potential of magnetic materials in novel data storage approaches, including spintronics-based magnetic memories and magnetic skyrmions.

Keywords: Magnetic materials,Data storage,Magnetic recording,Hard disk drives (HDDs), Magnetic tapes,Magnetic memory technologies, Magnetization dynamics, Magnetic switching mechanisms,Perpendicular recording, Heat-assisted magnetic recording (HAMR),Areal densities,Superparamagnetic limitations, Spintronics-based magnetic memories, Magnetic skyrmions,Emerging technologies, Information storage, Areal density, Magnetic storage devices.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

29.Title: Galaxies: Building Blocks of the Universe

[1]Mrs.R.Saratha, [2]Mrs.T.Renugadevi, [3]R.Jeevitha, [4]R.Ramana.
[1, 2]Asst. Prof., Dept. of Phy, Sri Bharathi Engineering College, Pudukkottai
[3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: "Galaxies: Building Blocks of the Universe" presents a comprehensive exploration of galaxies, the fundamental constituents of our cosmos. This work delves into the diverse properties, structures, and evolution of galaxies, from dwarf irregulars to giant ellipticals. Through a multidisciplinary approach, we uncover the intricate interplay of gravitational forces, dark matter, and the stellar components that shape these cosmic entities. Investigating observational data and theoretical models, this study elucidates the role galaxies play in the grand tapestry of the universe's formation and expansion. By delving into the vastness of the cosmic web, we gain valuable insights into the formation and evolution of galaxies and their profound significance as the building blocks of the universe.

Keywords: Galaxies, Cosmology, Stellar Components, Galactic Structure, Gravitational Forces, Dark Matter, Galaxy Formation, Galaxy Evolution, Cosmic Web, Observational Astronomy, Theoretical Astrophysics, Interstellar Medium, Black Holes, Galaxy Clusters.

30.Title: The Dance of the Stars: Exploring Astrophysical Phenomena

[1]Mrs. T.Renugadevi, [2]Mrs.R.Saratha, [3]M.Nivedha, [4]R.Roslina Begum
[1, 2]Asst. Prof., Dept. of Phy, Sri Bharathi Engineering College, Pudukkottai
[3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: "The Dance of the Stars: Exploring Astrophysical Phenomena" embarks on an enthralling journey through the intricate and captivating world of astrophysical phenomena. This work delves into the mesmerizing interactions and behaviors of stars, from their birth in stellar nurseries to their dazzling demise as supernovae or compact remnants. By exploring the processes of stellar fusion, nucleosynthesis, and the formation of exotic objects like neutron stars and black holes, we gain insights into the dynamic and diverse phenomena that shape the cosmos. Through a combination of observational data, theoretical models, and cutting-edge simulations, this study unravels the cosmic ballet performed by stars, illuminating the profound implications these celestial dancers have for our understanding of the universe.

Keywords: Astrophysical Phenomena, Stars, Stellar Interactions, Stellar Evolution, Stellar Nurseries, Stellar Fusion, Supernovae, Compact Objects, Neutron Stars, Black Holes, Nucleosynthesis, Observational Astronomy, Theoretical Astrophysics, Cosmic Ballet, Exotic Objects, Stellar Dynamics, Stellar Structure.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

31.Title: Wide Bandgap Semiconductors: Enabling High-Power Electronics

[1]Mrs. T.Renugadevi, [2]Mrs.R.Saratha, [3]S.Puviyarasi, [4]P.Akila.
[1, 2]Asst. Prof., Dept. of Phy, Sri Bharathi Engineering College, Pudukkottai
[3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: "Wide Bandgap Semiconductors: Enabling High-Power Electronics" explores the transformative impact of wide bandgap semiconductors on the field of high-power electronics. This work delves into the unique properties of wide bandgap materials, such as silicon carbide (SiC) and gallium nitride (GaN), which allow for superior performance under high voltages, temperatures, and frequencies. Through a comprehensive examination of their advantages over traditional semiconductors like silicon, we uncover their potential to revolutionize power electronics applications, including power converters, motor drives, and radio frequency amplifiers. Additionally, this study investigates the challenges and ongoing research in wide bandgap semiconductor technology, paving the way for more efficient and reliable high-power electronic systems. By understanding the significance of wide bandgap semiconductors, we open new avenues for energy-efficient and high-performance electronics in various industries.

Keywords: Wide Bandgap Semiconductors, Silicon Carbide (SiC), Gallium Nitride (GaN), High-Power Electronics, Power Electronics, High-Voltage Applications.

32.Titles: From Darkness to Radiance: Exploring the Secrets of Luminescence

[1]Mrs. T.Renugadevi, [2]Mrs.R.Saratha, [3]S.Ishwarya, [4]K.Sushmeena.
[1, 2]Asst. Prof., Dept. of Phy, Sri Bharathi Engineering College, Pudukkottai
[3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: "From Darkness to Radiance: Exploring the Secrets of Luminescence" embarks on a captivating journey through the enigmatic world of luminescence, where materials radiate light, transcending darkness. This work delves into the underlying principles and mechanisms that give rise to luminescence, uncovering the diverse natural and artificial sources of this radiant phenomenon. Through a multidisciplinary approach encompassing physics, chemistry, and materials science, we explore the intricacies of luminescent materials, from organic compounds to inorganic phosphors and quantum dots. Furthermore, this study examines the diverse applications of luminescence in lighting, displays, sensing, and bioimaging, showcasing its significance in modern technology and scientific research. By delving into the secrets of luminescence, we illuminate the path towards harnessing light for a myriad of practical and aesthetic purposes.

Keywords: Luminescence, Light Emission, Radiant Phenomenon, Luminescent Materials, Natural Sources, Artificial Sources, Organic Compounds, Inorganic Phosphors.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

33.Title: Magnetic Susceptibility of Paramagnetic Materials: Curie's Law and Beyond

[1]Mr.N.Suresh, [2]R.Nithyasri, [3]P.Dev, [4]H.Udayakumar
[1]Asst. Prof., Dept. of Phy, Motherteresa College of Engineering and Technology, Pudukkottai
[2 3 4] UG Student Motherteresa College of Engineering and Technology, Pudukkottai

Abstract: The magnetic susceptibility of paramagnetic materials is a key characteristic that governs their response to external magnetic fields. Understanding the behavior of paramagnetic materials has significant implications in fields ranging from condensed matter physics to materials science and engineering. This paper provides a comprehensive analysis of the magnetic susceptibility of paramagnetic materials, with a primary focus on Curie's law and its limitations. We explore the underlying principles behind paramagnetism, examining the role of electron spins and magnetic moments in the presence of an external magnetic field. Furthermore, we delve into quantum mechanical effects and advanced theories that go beyond the scope of Curie's law, shedding light on the complexities of paramagnetism in various materials. Through this investigation, we aim to contribute to a deeper understanding of paramagnetic materials and their potential applications in emerging technologies.

Keywords: Paramagnetic materials, magnetic susceptibility, Curie's law, magnetic moments, electron spins, external magnetic field, quantum paramagnetism, condensed matter physics, materials science, advanced theories, emerging technologies.

34.Title: The Quantum Realm: Where Physics Defies Intuition

[1]Mr. P.Manikandan, [2]S.Gunaselvi, [3]R.Parthiban, [4]K.VimalAntony.
[1]Asst. Prof., Dept. of Phy, Mountzion College of Engineering and Technology, Pudukkottai
[2, 3, 4]UG Student Mountzion College of Engineering and Technology, Pudukkottai

Abstract: "The Quantum Realm: Where Physics Defies Intuition" delves into the fascinating and perplexing world of quantum mechanics, where the rules of classical physics no longer apply. This paper explores the fundamental principles and phenomena that characterize the quantum realm, including superposition, entanglement, and wave-particle duality. We examine the profound implications of quantum mechanics on our understanding of reality and its potential applications in various fields, such as quantum computing and cryptography. Despite its counterintuitive nature, quantum mechanics has been experimentally verified and continues to revolutionize the way we view the building blocks of the universe.

Keywords: Quantum mechanics, Quantum realm, Superposition, Entanglement, Wave-particle duality, Uncertainty principle, Quantum computing, Quantum cryptography, Subatomic particles, Quantum phenomena

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

35.Title: Atomic Physics: Probing the Nucleus of Reality

[1]Ms.R.Anushya, [2]R.Arunachalam, [3]L.Balakrishnan, [4]R.Ambiga.
[1, 2]Asst. Prof., Dept. of Phy, Shanmuganathan Engineering College, Pudukkottai
[3, 4]UG Student Shanmuganathan Engineering College, Pudukkottai

Abstract: "Atomic Physics: Probing the Nucleus of Reality" delves into the captivating realm of atomic physics, where scientists scrutinize the fundamental constituents of matter. This paper delves into the intricacies of atoms, their structure, and interactions, with a focus on the nucleus—the central repository of protons and neutrons. The exploration of quantum mechanics and the various atomic phenomena, such as electron transitions, energy levels, and atomic spectroscopy, provides crucial insights into the behavior of matter on the subatomic scale. By unraveling the nucleus of reality, we gain a deeper understanding of the universe's building blocks and the intricate mechanisms that govern the physical world.

Keywords: Atomic physics, Nucleus, Subatomic particles, Quantum mechanics, Electron transitions, Energy levels, Atomic interactions, Atomic spectroscopy, Matter, Quantum phenomena

36.Titles: Dielectric Breakdown and Electrical Insulation

[1]Mr. S.Chandrakumar, [2]R.Arun, [3]S.Venkateshprabu, [4]R.Kavipriya.
[1]Asst Prof., Dept. of Phy, Shanmuganathan Engineering College, Pudukkottai
[2, 3, 4]UG Student Shanmuganathan Engineering College, Pudukkottai

Abstract: Dielectric breakdown is a critical phenomenon in electrical insulation, where insulating materials lose their ability to withstand electrical stress, leading to electrical failure. Understanding the mechanisms and factors influencing dielectric breakdown is essential for ensuring the reliability and safety of various electrical and electronic systems. This paper provides an overview of dielectric breakdown processes and explores the key factors affecting electrical insulation performance. Various experimental techniques for assessing dielectric breakdown strength are discussed, along with strategies to improve electrical insulation properties and prevent breakdown occurrences. Additionally, the paper highlights the importance of research in dielectric breakdown to advance insulation materials and enhance the resilience of modern electrical infrastructure.

Keywords: Dielectric breakdown, electrical insulation, insulation materials, electrical stress, breakdown mechanisms, dielectric strength, electrical failure, dielectric testing, reliability, safety, electrical systems, experimental techniques, insulation properties, electrical infrastructure.

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37.Title: Crystal Defects: Imperfections Guiding Material Science and Engineering

[1]Mr. P.Uma, [2]R.Arun, [3]S.Venkateshprabu, [4]R.Kavipriya.
[1]Asst Prof Dept of Phy Chendhuran College of Engineering and Technology, Pudukkottai
[2, 3, 4]UG Student Chendhuran College of Engineering and Technology, Pudukkottai

Abstract: Crystal defects, often referred to as imperfections in the periodic arrangement of atoms within crystalline materials, play a significant role in shaping the properties and behavior of materials. These imperfections arise during the growth, processing, and deformation of crystals, impacting various physical, mechanical, and electrical characteristics. This paper explores the role of crystal defects in material science and engineering, highlighting their importance in tailoring material properties for specific applications. The study delves into various types of defects, including vacancies, interstitials, dislocations, and grain boundaries, and examines their effects on material performance. Understanding crystal defects has become essential for designing advanced materials with enhanced functionalities, providing a foundation for innovation and technological breakthroughs.

Keywords: Crystal defects, imperfections, material science, engineering, periodic arrangement, atoms, crystalline materials, physical properties..

38.Title: Thermodynamics: Unraveling the Mysteries of Energy and Equilibrium

[1]Mrs. T.Renugadevi, [2]Mrs.R.Saratha, [3]V.Senpagaharini, [4]S.Arthi.
[1, 2]Asst Prof., Dept. of Phy, Sri Bharathi Engineering College, Pudukkottai
[3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Thermodynamics is a fundamental branch of physics that governs the behavior of energy and its transformations in various systems. It plays a crucial role in understanding the principles of heat, work, and the concept of equilibrium in physical and chemical processes. This paper explores the core principles of thermodynamics, including the laws of thermodynamics, entropy, and energy conservation, and their applications in diverse fields such as engineering, chemistry, and environmental science. Through the lens of thermodynamics, the study provides insights into the efficiency of energy conversion processes, heat transfer mechanisms, and the prediction of system behaviors.

Keywords: Thermodynamics, energy, equilibrium, laws of thermodynamics, entropy, heat, work, energy conservation, physics, chemistry, engineering, heat transfer, energy conversion, system behaviors, technology, industry, environmental science, sustainability, natural world.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

39.Title: Computational Studies of Metal-Organic Frameworks: Designing Porous Materials for Sustainable Applications

[1]Mrs.T.Annalakshmi, [2]Abirami.S, [3]Fefina.I, [4]Kowsalya.M
[1]Asst Prof Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai
[2, 3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Metal-organic frameworks (MOFs) have emerged as a fascinating class of porous materials with diverse applications in gas storage, separation, catalysis, and drug delivery. The ability to tailor their structures and properties through rational design has led to significant interest in computational studies to accelerate their discovery and development. This paper reviews the recent advancements in computational chemistry and materials science techniques applied to the study of MOFs. It discusses the use of quantum mechanical calculations, molecular simulations, and high-throughput screening methods to predict MOF properties, such as gas adsorption capacities, selectivities, and stability. Additionally, the role of machine learning and data-driven approaches in identifying promising MOF candidates for sustainable applications is explored.

Keywords:: Metal-organic frameworks, MOFs, computational chemistry, porous materials, gas storage, gas separation, catalysis, drug delivery, quantum mechanical calculations, molecular simulations, high-throughput screening, machine learning, sustainable applications, materials discovery, rational design.

40.Title: Exploring Catalytic Mechanisms through Computational Chemistry and Density Functional Theory

[1]Mrs.T.Annalakshmi, [2]Priyanga.R, [3]Asmath Hazeena.N, [4]Lavanya.S
[1]Asst Prof Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai
[2, 3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Catalysis plays a crucial role in numerous chemical and industrial processes, facilitating the conversion of reactants to products with enhanced efficiency and selectivity. Understanding the underlying catalytic mechanisms is essential for the development of efficient and sustainable catalysts. Computational chemistry, particularly density functional theory (DFT), has emerged as a powerful tool for exploring catalytic mechanisms at the molecular level. This paper presents an overview of how computational chemistry and DFT have revolutionized the study of catalysis, providing insights into reaction pathways, transition states, and reaction kinetics. We discuss the application of DFT in modeling various types of catalysts, including transition metals, enzymes, and heterogeneous materials.

Keywords: Catalysis, computational chemistry, density functional theory, DFT, catalytic mechanisms, reaction pathways, transition states, reaction kinetics, sustainable catalysts.

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41.Title: Solving Reaction Mechanisms and Kinetics in Organic Chemistry

[1]Mrs.T.Annalakshmi, [2]Puviyarasi.S, [3]Lakshmi.N, [4]Thaiyal Nayagi.K
[1]Asst Prof Dept of Chemistry Sri Bharathi Engineering College, Pudukkottai
[2, 3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Understanding reaction mechanisms and kinetics in organic chemistry is essential for designing efficient and selective synthetic routes, optimizing reaction conditions, and predicting reaction outcomes. This paper reviews the contributions of computational chemistry methods to elucidate reaction mechanisms and predict kinetic parameters in organic reactions. It discusses the application of quantum chemical calculations, molecular dynamics simulations, and transition state theory in exploring the detailed pathways of various organic transformations. Furthermore, the role of computational studies in determining rate constants, activation energies, and reaction rate profiles is examined. The synergistic combination of experimental data and computational insights is emphasized, demonstrating how computational approaches complement experimental techniques in solving complex organic reaction mechanisms..

Keywords: Reaction mechanisms, kinetics, organic chemistry, computational chemistry, quantum chemical calculations.

42.Title: Computational Studies of Metal-Organic Frameworks: Designing Porous Materials for Sustainable Applications

[1]Mrs.T.Annalakshmi, [2]Jeevitha.R, [3]Ramana.R, [4]Akila.P
[1]Asst Prof Dept of Chemistry Sri Bharathi Engineering College, Pudukkottai
[2, 3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Metal-organic frameworks (MOFs) have emerged as a class of versatile porous materials with immense potential for various sustainable applications, such as gas storage, gas separation, catalysis, and drug delivery. Their tunable structures and properties offer promising solutions to address environmental and energy challenges. Computational studies play a crucial role in understanding the fundamental principles governing MOF behavior and in designing new materials with tailored properties for specific applications. This paper provides a comprehensive overview of computational approaches applied to study MOFs, including molecular modeling, density functional theory (DFT), molecular dynamics simulations, and high-throughput screening techniques.

Keywords: Metal-organic frameworks, MOFs, computational studies, porous materials, sustainable applications, gas storage, gas separation, catalysis, drug delivery, molecular modeling, density functional theory, DFT.

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43.Title: Computational Approaches for Understanding Electrochemical Processes and Batteries

[1]Mrs.T.Annalakshmi, [2]Sineka.K, [3]Ishwarya.S, [4]Sountharya.P
[1]Asst. Prof., Dept. of Chemistry, Sri Bharathi Engineering College, Pudukkottai
[2, 3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Electrochemical processes and batteries are at the forefront of sustainable energy storage and conversion technologies. Computational approaches have revolutionized our understanding of the complex electrochemical phenomena occurring at the molecular level. This paper provides an in-depth review of computational methods employed in studying electrochemical processes and batteries. It explores the use of density functional theory (DFT), molecular dynamics simulations, and continuum models to unravel the mechanisms governing charge transfer, electrode interfaces, and diffusion in electrolytes. Furthermore, the paper highlights how computational tools aid in the design and optimization of battery materials and interfaces, enhancing their performance and lifespan. The role of machine learning and data-driven approaches in accelerating materials discovery and the development of advanced battery technologies is also discussed.

Keywords: Electrochemical processes, batteries, computational approaches, density functional theory, DFT, molecular dynamics simulations.

44.Title: Additive Manufacturing of Composites: 3d Printing And Beyond

[1]Mrs.T.Annalakshmi, [2] Umabharathi.M, [3] Mamtha.G, [4] Evanjelin.S
[1]Asst. Prof, Dept. of Chemistry, Sri Bharathi Engineering College, Pudukkottai
[2, 3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Additive manufacturing, commonly known as 3D printing, has emerged as a revolutionary technique for fabricating complex structures with unprecedented design flexibility and customization. In recent years, additive manufacturing has extended its application domain to composite materials, combining the advantages of both technologies. This paper provides a comprehensive overview of additive manufacturing of composites, exploring the principles, processes, and advancements in this field. The review discusses various composite materials suitable for 3D printing, including polymer composites, metal matrix composites, and ceramic composites. It delves into the different additive manufacturing methods employed for composites, such as fused deposition modeling (FDM), stereolithography (SLA), selective laser sintering (SLS), and binder jetting.

Keywords: Additive manufacturing, 3D printing, Composites, Polymer composites, Metal matrix composites, Ceramic composites.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

45.Title: DNA Replication and Repair: Understanding the Processes that Ensure the Accurate Replication and Repair of DNA

[1]Mrs.P.Geetha, [2]P.Ragavi, [3]S.Mahalakshmi, [4]V.Chitradevi
[1]Asst. Prof., Dept. of Chemistry Chendhuran College of Engineering, Pudukkottai.
[2, 3, 4]UG Student Chendhuran College of Engineering, Pudukkottai

Abstract: DNA replication and repair are fundamental processes in maintaining the integrity and stability of genetic information in living organisms. Accurate replication of DNA is essential for the faithful transmission of genetic material during cell division, while efficient DNA repair mechanisms safeguard against various forms of damage that can arise from both endogenous and exogenous sources. This paper provides a comprehensive overview of the processes involved in DNA replication and repair. It explores the molecular machinery and enzymes responsible for DNA synthesis and the coordination of replication across the genome. Additionally, the paper delves into various DNA repair pathways, including base excision repair, nucleotide excision repair, mismatch repair, and double-strand break repair.

Keywords: DNA replication, DNA repair, genetic information, replication accuracy, cell division, DNA synthesis, replication machinery, DNA damage, endogenous damage.

46.Title: Hormones And Signaling Molecules: Investigating The Role of Hormones and Signaling Molecules In Coordinating Physiological Processes

[1]Mrs.A.Sathya, [2]S.Thenmozhi, [3]M.Aasha, [4]S.Karthika
[1]Asst Prof Dept of Chemistry Mahath Amma Engineering College, Pudukkottai
[2, 3, 4]UG Student Mahath Amma Engineering College, Pudukkottai

Abstract: Hormones and signaling molecules are crucial regulators that orchestrate and coordinate a wide range of physiological processes within living organisms. These chemical messengers transmit information between cells and organs, allowing for the integration of various biological responses and the maintenance of internal balance. This paper explores the fundamental role of hormones and signaling molecules in physiological regulation. It investigates the diverse classes of hormones, including steroid hormones, peptide hormones, and neurotransmitters, elucidating their modes of action through intracellular or cell surface receptors. Additionally, the paper delves into the intricacies of intracellular signaling pathways, such as cyclic adenosine monophosphate (cAMP) and phosphoinositide pathways, which mediate cellular responses to hormonal stimuli..

Keywords: Hormones, signaling molecules, physiological processes, chemical messengers, intracellular receptors, cell surface receptors, steroid hormones.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

47.Title: Carbon Nanomaterials: Synthesis, Properties and Applications

[1]Mrs.S.Divya, [2]S.Rajalakshmi, [3]M.Karpagam, [4]K.Nirosha
[1] Asst Prof Dept of Chemistry Mahath amma engineering college, Pudukkottai
[2, 3, 4]UG Student Mother Theresa engineering college, Pudukkottai

Abstract: Carbon nanomaterials, including carbon nanotubes, graphene, and fullerenes, have garnered significant attention in the scientific community due to their unique properties and wide-ranging applications. This paper provides a comprehensive review of the synthesis methods, intrinsic properties, and diverse applications of carbon nanomaterials. It discusses various techniques employed for the controlled synthesis of carbon nanotubes and graphene, highlighting their structure-dependent properties. The distinctive mechanical, electrical, thermal, and optical properties of these nanomaterials are explored, along with their potential applications in electronics, energy storage, composites, sensors, and biomedical devices. Additionally, the paper delves into the challenges and future prospects of carbon nanomaterials, emphasizing the need for scalable synthesis methods and improved understanding of their behavior at the nanoscale.

Keywords: Carbon nanomaterials, carbon nanotubes, graphene, fullerenes, synthesis methods, properties, mechanical properties, electrical properties, thermal properties, optical properties.

48.Title: Coal Energy: Past, Present and Future

[1]Mrs.T.Annalakshmi, [2]Senpagaharini.V, [3]Subathra.S, [4]Hema.V
[1]Asst Prof., Dept. of Chemistry, Sri Bharathi Engineering College, Pudukkottai
[2 3 4] UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: The abstract for "Coal Energy: Past, Present, and Future" provides an in-depth exploration of the historical significance, current status, and potential outlook of coal as an energy source. It traces the evolution of coal energy from its early use to power the industrial revolution to its present role in electricity generation and other applications. The abstract discusses the advantages and disadvantages of coal as an abundant and reliable source of energy but also addresses the environmental challenges associated with its combustion, such as greenhouse gas emissions and air pollution. It examines the ongoing efforts to improve coal-based technologies through clean coal initiatives and carbon capture and storage (CCS) methods. Moreover, the abstract delves into the potential future of coal energy, considering its role in a transitioning energy landscape and its compatibility with global climate change goals

Keywords: Coal Energy, Fossil Fuels, Industrial Revolution, Electricity Generation, Greenhouse Gas Emissions, Air Pollution, Clean Coal Technologies.

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49.Title: Composite Materials for Infrastructure and Construction

[1]Mrs.T.Annalaksmi, [2]Nandhini.P, [3]Rosammal.M, [4]Anushya.M
[1]Asst Prof Dept. of Chemistry, Sri Bharathi Engineering College, Pudukkottai
[2, 3, 4]UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: The abstract for "Composite Materials for Infrastructure and Construction" provides a mprehensive overview of the significant role composite materials play in modern construction and infrastructure projects. It explores the unique properties and advantages that composites offer, including high strength-to-weight ratio, corrosion resistance, durability, and design flexibility. The abstract highlights the increasing demand for sustainable and long-lasting construction materials, driving the adoption of composites in various infrastructure applications, such as bridges, buildings, roads, and pipelines. It delves into specific examples of composite materials used in construction, including fiber-reinforced polymers (FRP), carbon fiber composites, and sandwich structures. Moreover, the abstract discusses the challenges and considerations in incorporating composites into traditional construction practices, such as standardization, cost-effectiveness, and design codes. It concludes by emphasizing the transformative potential of composite materials in revolutionizing the construction industry and building more resilient, efficient, and sustainable infrastructure.

Keywords: Composite Materials, Infrastructure, Construction, Fiber-Reinforced Polymers (FRP), Carbon Fiber Composite.

50.Title: Lightweight Alloys for Aerospace and Automotive Applications

[1]Mrs.P.Bhavani, [2]S.Ramadevi, [3]S.Mahilmathi, [4]V.Chitra,
[1]Asst Prof Dept of Chemistry Chendhuran College of Engineering, Pudukkottai
[2, 3, 4]UG Student, Chendhuran College of Engineering, Pudukkottai

Abstract: Lightweight alloys have revolutionized the aerospace and automotive industries by offering exceptional properties and performance advantages over conventional materials. This paper provides an overview of the key lightweight alloys extensively employed in both sectors. It explores their unique characteristics, manufacturing techniques, and applications. The study emphasizes the critical role of these alloys in enhancing fuel efficiency, reducing emissions, and improving overall vehicle and aircraft performance.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

51.Title: Utilization of High-Volume Fly Ash in Concrete for Enhanced Strength

[1]Mr.Vetrivel.S, [2]Mrs.Priya.R, [3]Ms.Abinaya .S
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Concrete is one of the most widely used construction materials due to its strength, durability, and versatility. The production of conventional concrete contributes to significant environmental impacts, including carbon dioxide emissions and depletion of natural resources. As a sustainable alternative, the utilization of high-volume fly ash in concrete has gained attention in recent years. Fly ash, a byproduct of coal combustion in power plants, is a pozzolanic material that can be used as a cement replacement in concrete production. Utilization of high-volume fly ash in concrete to enhance its strength and sustainability.

Keywords: High-volume fly ash, concrete, strength enhancement, sustainability, cement replacement, pozzolanic material, mechanical properties, mix design, water-to-binder ratio, curing conditions.

52.Title: Incorporation of Waste Plastic Fibers as Reinforcement in Concrete

[1]Mrs.Chithirai Selvi.N, [2]Mrs.Priya.R, [3]Ms. Vanmathi.M
[1,2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The increasing generation of plastic waste has become a significant environmental concern. To address this issue and enhance the sustainability of concrete construction, this study investigates the incorporation of waste plastic fibers as reinforcement in concrete. The mechanical properties, including compressive strength, flexural strength, and tensile strength, were evaluated and compared with conventional concrete. The concrete specimens reinforced with waste plastic fibers exhibited improved flexural performance and enhanced tensile strength compared to plain concrete.

Keywords: Waste plastic fibers, Reinforcement, Concrete, Compressive strength, Flexural strength, Tensile strength, Durability, Sustainability.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

53.Title: Development of Recycled Aggregate Concrete with Supplementary Cementitious Materials

[1]Mr.Vetrivel.S, [2]Ms.vidhya.S, [3]Ms.Ananthi .V
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The construction industry generates a significant amount of waste materials, including demolished concrete. Recycling these waste materials and incorporating them into new concrete can contribute to sustainable construction practices. This abstract focuses on the development of recycled aggregate concrete (RAC) with an addition of supplementary cementitious materials (SCMs) to enhance its properties. Use of recycled aggregates, obtained from crushed concrete waste, as a replacement for natural aggregates in concrete production. Incorporation of SCMs, such as fly ash, slag, or silica fume, to further optimize the performance of RAC. The effects of varying the proportions of recycled aggregates and SCMs on the mechanical properties, durability, and sustainability aspects of RAC are evaluated.

Keywords: recycled aggregate concrete, supplementary cementitious materials, demolished concrete waste, sustainable construction, mechanical properties, durability, sustainability, compressive strength, flexural strength, water absorption, chloride ion penetration, curing conditions, chemical admixtures.

54.Title: Optimization of Waste-to-Energy Conversion Processes for Enhanced Energy Recovery and Reduced Environmental Impact

[1]Ms. S. Anbarasi
[1]Assistant professor, Department of Civil Engineering, Sudharsan Engineering College

Abstract: Waste-to-energy (WTE) conversion processes have gained significant attention as a sustainable solution for waste management and energy production. Optimization of WTE conversion processes to achieve enhanced energy recovery and reduced environmental impact. Key areas of investigation include the selection of appropriate technologies, process optimization parameters, and the evaluation of different waste feedstocks. The optimization process considers factors such as energy efficiency, waste composition, combustion efficiency, emissions reduction, and ash management. The aim is to maximize energy recovery while minimizing environmental impacts, such as greenhouse gas emissions and air pollutants.

Keywords: waste-to-energy, energy recovery, process optimization, waste management, environmental impact, energy efficiency, combustion, emissions reduction, ash management.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

55.Title: Exploring Lime Stabilization for Improving Subgrade Soil Characteristics in Road Construction

[1]Ms.Gayathri.G, [2]Mrs.Kayalvizhi.R, [3]Ms. Syed Ali Fathima.G
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The effectiveness of lime stabilization in improving subgrade soil characteristics for road construction applications. The subgrade soil is a crucial component of the road foundation, and its strength and stability significantly impact the overall performance and lifespan of the pavement. Lime stabilization is a widely adopted soil improvement technique that involves the addition of lime to the soil to enhance its engineering properties. Different lime dosages were evaluated to determine the optimal proportion that yields the most desirable improvements. The performance of lime-stabilized subgrade soils was compared with untreated soil samples to assess the effectiveness of the stabilization process. The strength of the lime-stabilized subgrade was substantially enhanced, providing a stable and supportive foundation for road construction.
Keywords: lime stabilization, subgrade soil, road construction, soil improvement, plasticity, compaction, strength, pavement performance, soil engineering, lime dosage.

56.Title: Effect of Nanomaterial Stabilization on the Strength and Durability of Cohesive Soils in Foundation Engineering

[1]Ms.Vidhya.S, [2]Mrs.Dennis flora.P, [3]Ms. Raihanajasmine.A.S
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The incorporation of nanomaterials in foundation engineering has shown promising results in enhancing the strength and durability of cohesive soils. The effect of nanomaterial stabilization on cohesive soils' mechanical properties, with a focus on its potential implications for foundation engineering. Various types of nanomaterials, such as nanoparticles and nanofibers, have been employed to stabilize cohesive soils, aiming to improve their load-bearing capacity, resistance to deformation, and long-term performance. Evaluates the long-term stability and durability of the treated cohesive soils to assess the feasibility and practicality of using nanomaterial stabilization in real-world foundation engineering projects. Nanomaterials on cohesive soil properties, offering valuable insights for designing more resilient and sustainable foundation structures.
Keywords: Nanomaterial Stabilization, Cohesive Soils, Foundation Engineering, Strength, Durability, Nanoparticles, Nanofibers, Load-Bearing Capacity, Soil Behavior, Long-Term Stability.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

57.Title: Thermal and Fire Performance of Basalt Fiber Reinforced Composites

[1]Mr. S. Manikandan, [2]Mr. M. Vijay Prakash
[1, 2]Assistant professor, Department of Civil Engineering,
Mount Zion College of Engineering and Technology

Abstract: The thermal and fire performance of basalt fiber reinforced composites (BFRC) to evaluate their behavior and suitability for fire-resistant applications. The analysis considers factors such as ignition temperature, flame propagation, smoke generation, and structural integrity under fire conditions. Case studies of BFRC applications in fire-prone industries are reviewed to highlight their effectiveness in preventing fire spread and minimizing fire damage. BFRC exhibits excellent thermal insulation properties, high heat resistance, and low flame spread characteristics. The importance of further research to optimize BFRC formulations, enhance fire retardant properties, and comply with fire safety regulations.

Keywords: Basalt fiber reinforced composites, thermal performance, fire performance, thermal conductivity, heat resistance, flame spread, fire resistance, ignition temperature, smoke generation, structural integrity, case studies, fire prevention, fire damage, fire safety, research.

58.Title: Influence of Mineral Admixtures on Rheological Properties of Self-Consolidating Concrete

[1]Mrs.Priya.R, [2]Ms.Manju.R, [3]Ms. Madhumitha.M
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The influence of mineral admixtures on the rheological properties of self-consolidating concrete (SCC). SCC is a specialized concrete mix designed to flow and consolidate under its own weight without the need for mechanical vibration, resulting in improved construction efficiency and enhanced durability of structures. Mineral admixtures, such as fly ash, silica fume, and ground granulated blast furnace slag, are commonly used in SCC to enhance its mechanical and durability characteristics. The experimental program involved the preparation of various SCC mixes with varying percentages of mineral admixtures, while keeping other mix proportions constant. The rheological properties of the SCC mixes, including slump flow, T50 time, and V-funnel flow time, were thoroughly investigated and compared to a control mix without any mineral admixture.

Keywords: self-consolidating concrete, SCC, rheological properties, mineral admixtures, flowability, slump flow, T50 time, V-funnel flow time, mechanical properties, durability, construction efficiency.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

59.Title: Investigation of the Effect of Paver Block Shape on Interlocking Mechanisms

[1]Mr.Vetrivel.S, [2]Mrs.Chithirai Selvi.N, [3]Ms.Rasika .R
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Paver blocks are widely used in the construction industry for various applications, including walkways, driveways, and pavements. The interlocking mechanism between these blocks plays a crucial role in ensuring stability and load-bearing capacity. This abstract focuses on the investigation of the effect of paver block shape on interlocking mechanisms to enhance the performance and durability of paved surfaces.The research examines different paver block shapes, including rectangular, square, hexagonal, and circular, and assesses their interlocking behavior under various loading conditions.

Keywords: paver blocks, interlocking mechanisms, shape, stability, load-bearing capacity, performance, durability, rectangular, square, hexagonal, circular, dimensions, surface texture, joint design, shear strength, pullout tests, interlocking efficiency, environmental factors, temperature variations, moisture content.

60.Title: The behavior and performance of reinforced concrete structures under various loading conditions using ANSYS software.

[1]Mr. S. Dharmadurai, [2]Ms. K. Abirami
[1, 2]Assistant professor, Department of Civil Engineering,
Mother Terasa College of Engineering and Technology

Abstract: The behavior and performance of reinforced concrete structures under various loading conditions using ANSYS software. Reinforced concrete is a widely used construction material due to its strength, durability, and versatility. Experimental tests, such as flexural tests, shear tests, and compression tests, are conducted on reinforced concrete specimens to measure their mechanical properties and validate the numerical simulations using ANSYS software. The analysis considers factors such as material properties, reinforcement detailing, and boundary conditions. The research outcomes contribute to the development of improved design guidelines and methodologies for the efficient and reliable design of reinforced concrete structures in various engineering applications.

Keywords: Reinforced concrete structures, ANSYS software, behavior and performance, loading conditions, nonlinear response, material nonlinearity, cracking, post-peak behavior, flexural tests, shear tests, compression tests, numerical simulations, material properties, reinforcement detailing, boundary conditions, load-carrying capacity, deformation characteristics, failure modes, design guidelines.

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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61.Title: Impacts of Coagulant Dosage on Water Treatment Performance

[1]Ms.Manju.R, [2]Ms.Gayathri.G, [3]Ms.Menaka.R
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Coagulation is an essential process in water treatment that involves the addition of chemicals to destabilize suspended particles and facilitate their removal. The dosage of coagulants plays a critical role in determining the efficiency and effectiveness of the water treatment process. This abstract investigates the impacts of coagulant dosage on water treatment performance and provides insights into optimizing dosage levels for improved water quality.The research explores the effects of varying coagulant dosages on key performance parameters, such as turbidity removal, organic matter reduction, and disinfection byproduct formation. The study examines different coagulants, including aluminum-based and iron-based coagulants, and evaluates their performance at different dosage levels.

Keywords: coagulant dosage, water treatment, performance, turbidity removal, organic matter reduction, disinfection byproducts, aluminum-based coagulants, iron-based coagulants, dosage levels, coagulation, flocculation, sedimentation, filtration, water quality parameters, pH, alkalinity, initial turbidity.

62.Title: Investigation of the Compressive Strength of Concrete Incorporating Recycled Aggregates

[1]Ms.Dharshini.S, [2]Mrs.Chithirai Selvi.N, [3]Ms. Haritha.S
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The use of recycled aggregates in concrete has gained increasing attention as a sustainable solution to reduce the environmental impact of construction materials. the compressive strength of concrete incorporating recycled aggregates to assess its feasibility and performance as a viable alternative to traditional concrete mixes. The percentage of recycled aggregates was systematically varied to examine its influence on the compressive strength of the resulting concrete. Compressive strength tests were carried out at various curing ages to analyze the long-term performance of the concrete.

Keywords: Recycled aggregates, Compressive strength, Concrete, Sustainable construction, Environmental impact, Mix design, Quality control.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

63.Title: Finite Element Analysis (FEA) for hydraulic simulations in civil engineering

[1]Mrs. S. Eunice
[1]Assistant professor, Department of Civil Engineering, Mookambigai College of Engineering

Abstract: Finite Element Analysis (FEA) has emerged as a powerful tool for hydraulic simulations in civil engineering. This numerical method, based on the discretization of complex domains into smaller elements, allows for accurate prediction of fluid flow and hydraulic behavior in various civil engineering applications. By solving the governing equations of fluid dynamics, FEA enables engineers to analyze and optimize the design of hydraulic structures, such as dams, weirs, and spillways, as well as study the flow patterns and pressure distributions in open channels and pipe networks. This abstract highlights the significance of FEA in hydraulic simulations, emphasizing its ability to provide insights into the performance and safety of hydraulic systems.

Keywords: Finite Element Analysis, FEA, hydraulic simulations, civil engineering, fluid flow, hydraulic structures, dams, weirs, spillways, open channels, pipe networks.

64.Title: Optimization of Mix Proportions for Lightweight Concrete with Different Types of Lightweight Aggregates

[1]Mrs.Priya.R, [2]Mr.Vetrivel.S, [3]Ms. Elanthendral.N
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The mix proportions for lightweight concrete by considering different types of lightweight aggregates. The influence of various lightweight aggregates, such as expanded clay, expanded shale, and pumice, on the fresh and hardened properties of lightweight concrete. The study employs experimental tests to evaluate the workability, compressive strength, and density of lightweight concrete mixtures with different proportions of lightweight aggregates. The use of lightweight aggregates significantly affects the fresh and hardened properties of lightweight concrete, with variations observed in workability, strength, and density. Optimization of mix proportions for lightweight concrete with different types of lightweight aggregates, facilitating the development of high-performance lightweight concrete for various applications.

Keywords: Optimization, mix proportions, lightweight concrete, lightweight aggregates, expanded clay, expanded shale, pumice, fresh properties, hardened properties, workability, compressive strength, density, water-to-cement ratio, high-performance concrete, tailored mix designs.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

65.Title: Recycling and Waste Diversion Strategies for Municipal Solid Waste

[1]Mrs.Dennis flora.P, [2]Ms.Manju.R, [3]Ms.Ayesha Najum.M
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Recycling and waste diversion strategies are crucial in managing municipal solid waste and reducing its environmental impact. Highlights the importance of implementing effective recycling and waste diversion programs to minimize the amount of waste sent to landfills and promote resource conservation. It discusses various strategies and initiatives, including source separation, curbside recycling, composting, and waste-to-energy technologies. The abstract emphasizes the benefits of recycling and waste diversion, such as reducing greenhouse gas emissions, conserving natural resources, and creating economic opportunities through the development of recycling industries.

Keywords: recycling, waste diversion, municipal solid waste, source separation, curbside recycling, composting, waste-to-energy, environmental impact, landfill, resource conservation, greenhouse gas emissions, natural resources, economic opportunities, infrastructure, public awareness, funding, challenges, barriers.

66.Title: Cost Analysis and Economic Feasibility of Stone Column Stabilization Techniques

[1]Mrs.Kayalvizhi.R, [2]Mrs.Dennis flora.P, [3]Ms. Visalatchi.P
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Cost analysis and economic feasibility study of stone column stabilization techniques. Stone column stabilization is widely used to improve soil properties and enhance the load-bearing capacity of foundations. The economic viability of these techniques is a critical factor in decision-making processes. Evaluate the costs associated with implementing stone column stabilization, including material costs, construction expenses, and long-term maintenance considerations. The economic benefits and returns on investment associated with utilizing stone column stabilization techniques in various construction projects.

Keywords: Stone column stabilization, cost analysis, economic feasibility, soil improvement, load-bearing capacity, construction expenses, maintenance, returns on investment.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

67.Title: Assessing the Antibacterial Properties of Natural Coagulants in Wastewater Treatment

[1] Ms.Manju.R, [2]Mrs.Dennis Flora.P, [3]Ms.Kaliswari.M
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Wastewater treatment is crucial for maintaining environmental and public health. Coagulation is a widely used process in wastewater treatment plants to remove suspended solids and pathogens. This abstract focuses on assessing the antibacterial properties of natural coagulants for effective pathogen removal in wastewater treatment. Effectiveness of various natural coagulants, such as plant-based extracts and bio-based polymers, in inhibiting bacterial growth in wastewater. Evaluates the antibacterial activity of these natural coagulants against common wastewater pathogens, including Escherichia coli and Salmonella.

Keywords: antibacterial properties, natural coagulants, wastewater treatment, pathogen removal, plant-based extracts, bio-based polymers, bacterial growth inhibition, Escherichia coli, Salmonella spp., laboratory-scale experiments, bacterial inhibition, cell viability, microbial adhesion, coagulant dosage, contact time, pH, eco-friendly, sustainable wastewater treatment.

68.Title: Technological Advancements and Automation in Municipal Solid Waste Collection and Disposal Processes

[1]Mr. H. Hadilarshad
[1]Assistant professor, Department of Civil Engineering,
Chendhuran College of Engineering and Technology

Abstract: Technological advancements and automation have revolutionized municipal solid waste collection and disposal processes, enhancing efficiency, sustainability, and overall waste management practices. Significance of integrating advanced technologies, such as smart waste bins, route optimization software, and automated sorting systems, in improving waste collection and disposal operations. The abstract emphasizes the benefits of technological advancements, including reduced collection costs, optimized route planning, increased recycling rates, and improved worker safety. It discusses the role of automation in streamlining waste management processes, reducing manual labor, and enhancing data collection and analysis for informed decision-making.

Keywords: technological advancements, automation, municipal solid waste, waste collection, waste disposal, efficiency, sustainability, waste management practices, smart waste bins, route optimization software, automated sorting systems, collection costs, route planning, recycling rates, worker safety, manual labor, data collection, decision-making.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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69.Title: Influence of Hydration Control Admixtures on the Heat of Hydration and Temperature Rise in Mass Concrete

[1]Dr.Thilagavathi.S, [2] Mrs.Chithirai Selvi.N, [3]Ms.Maheswari.M
[1]Principal, [2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The control of heat of hydration and temperature rise is crucial in mass concrete placements to prevent thermal cracking and ensure long-term durability. This research investigates the influence of hydration control admixtures on the heat of hydration and temperature rise in mass concrete. The heat of hydration was monitored using isothermal calorimetry, and temperature rise was measured during the curing period. The results were analyzed to assess the effectiveness of the admixtures in mitigating the adverse effects of excessive heat generation. The admixtures helped in delaying the onset of hydration and reducing the overall heat release rate, thereby minimizing the risk of thermal cracking.

Keywords: Hydration control admixtures, Heat of hydration, Temperature rise, Mass concrete, Thermal cracking, Isothermal calorimetry, Durability.

70.Title: Comparative Analysis of Basalt Fiber Reinforced Composites with Traditional Fiber Reinforcements

[1] Mrs.Kayalvizhi.R, [2] Mrs.Priya.R, [3]Ms.Gowsika.N
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Traditional fiber reinforcements to assess their mechanical properties, performance, advantages, and limitations. The analysis considers factors such as tensile strength, flexural strength, impact resistance, and fatigue behavior. BFRC applications in different industries are reviewed to highlight their successful implementation and benefits. BFRC offers advantages including high strength-to-weight ratio, corrosion resistance, and improved thermal stability.. Optimize BFRC manufacturing processes, enhance fiber-matrix adhesion, and reduce costs.

Keywords: Basalt fiber reinforced composites, traditional fiber reinforcements, comparative analysis, mechanical properties, performance evaluation, advantages, limitations, tensile strength, flexural strength, impact resistance, fatigue behavior, case studies, corrosion resistance, thermal stability, research.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

71.Title: Environmental Impacts of Stone Column Stabilization: Sustainability and Ecological Considerations

[1] Mrs.Dennis flora.P, [2] Ms.Vidhya.S, [3]Ms.Elanthendral.N
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The environmental impacts of stone column stabilization techniques, with a focus on sustainability and ecological considerations. Stone column stabilization is often employed to enhance soil stability and bearing capacity. However, the implementation of such techniques can have potential environmental consequences that need to be carefully evaluated. To assess the sustainability and ecological implications of stone column stabilization methods, including the effects on soil composition, groundwater quality, and habitat disruption.

Keywords: Stone column stabilization, environmental impacts, sustainability, ecological considerations, soil composition, groundwater quality, habitat disruption.

72.Title: Influence of Retarding Admixtures on Setting Time and Hydration of Concrete

[1] Mr. Rajapandian. S, [2]Dr.Thilagavathi.S, [3]Ms.Suriya. T
[1]Assistant professor, [2]Principal, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Retarding admixtures are chemical agents used in concrete mixtures to extend the setting time and regulate the hydration process. The influence of retarding admixtures on the setting time and hydration of concrete to enhance the understanding of their effects on the concrete properties. The setting time of each mixture was measured using standard tests, while the hydration process was monitored through the analysis of heat release rates and hydration product formation.

Keywords: Retarding admixtures, Setting time, Hydration, Concrete, Workability, Strength development, Microstructure.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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73.Title: Adsorption and Ion Exchange Processes for the Removal of Heavy Metals from Textile Effluents

[1]Mr. K. Arun, [2]Mr. S. Kamaraj
[1]Assistant professor, Department of Civil Engineering,
Kings College of Engineering

Abstract: Textile effluents often contain high concentrations of heavy metals, posing significant environmental risks. Adsorption and ion exchange processes have emerged as effective techniques for the removal of heavy metals from textile wastewater. Importance of these processes in mitigating heavy metal pollution and ensuring sustainable textile effluent treatment. The abstract discusses the principles and mechanisms of adsorption and ion exchange, emphasizing their ability to selectively bind heavy metal ions and remove them from wastewater. It explores various adsorbents and ion exchange resins commonly employed for heavy metal removal, including activated carbon, zeolites, and chelating resins.

Keywords: adsorption, ion exchange, heavy metals, textile effluents, wastewater treatment, pollution mitigation, sustainable, principles.

74.Title: Bond Strength and Interface Behavior of Lightweight Concrete Reinforced with Different Types of Fibers.

[1]Ms.Gayathri.G, [2]Dr.Thilagavathi.S, [3]Ms.Karthika.T
[1]Assistant professor, [2]Principal, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The bond strength and interface behavior of lightweight concrete reinforced with different types of fibers. Experimental tests, including pull-out tests and bond-slip tests, are conducted to measure the bond strength and evaluate the interface behavior between the fibers and the lightweight concrete. Dosage of fibers have a significant impact on the bond strength and interface behavior. Steel fibers generally exhibit higher bond strength due to their high tensile strength and good adhesion properties with the concrete matrix. Polypropylene and glass fibers, on the other hand, exhibit lower bond strength but provide enhanced crack control and ductility.

Keywords: Bond strength, interface behavior, lightweight concrete, fibers, steel fibers, polypropylene fibers, glass fibers, pull-out test, bond-slip test, adhesion properties, crack control, ductility, mechanical properties, durability, reinforcement, aspect ratio, fiber distribution, lightweight concrete structures.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

75.Title: Investigating Sustainable Concrete Mixtures with Industrial By-Products and Recycled Aggregates

[1]Ms.Manju.R, [2]Mrs.Kayalvizhi.R, [3]Ms.Visalatchi. P
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Concrete production is known to have a significant environmental impact due to the extraction of raw materials and the release of carbon dioxide during cement production. This abstract focuses on investigating the use of industrial by-products and recycled aggregates in concrete mixtures to enhance sustainability and reduce environmental footprint. The performance of concrete mixtures incorporating industrial by-products, such as fly ash, slag, and silica fume, as partial replacements for cement. Use of recycled aggregates, such as crushed concrete and reclaimed asphalt pavement, as substitutes for natural aggregates in concrete production.The results aim to promote the adoption of eco-friendly alternatives and reduce the reliance on virgin materials in the construction industry.

Keywords: Sustainable concrete, Industrial by-products, Recycled aggregates, Environmental impact, Fly ash, Slag, Silica fume, Cement Replacement, Crushed concrete.

76.Title: Influence of Quarry Dust Content on Workability and Rheological Properties of Concrete Mixtures

[1]Dr.Thilagavathi.S, [2]Mr.Vetrivel.S, [3]Ms. Abinaya .S
[1]Principal, [2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: This study investigates the influence of quarry dust content on the workability and rheological properties of concrete mixtures. Workability is a crucial factor in concrete production as it affects the ease of handling, placing, and finishing of the concrete. Quarry dust, a byproduct of stone quarrying operations, has been considered as a potential replacement for fine aggregates in concrete production. The impact of varying quarry dust content on the workability and rheological properties of concrete. The study includes tests such as slump cone test, flow table test, and V-funnel test to assess the workability of the concrete mixtures. Rheological properties, such as yield stress, plastic viscosity, and flowability, are also evaluated using a rheometer.

Keywords: Quarry dust, workability, rheological properties, concrete mixtures, fine aggregates, slump cone test, flow table test, V-funnel test, yield stress, plastic viscosity, flowability, sustainable concrete mix designs.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

77.Title: Environmental Impact Assessment of E-Waste Concrete: A Life Cycle Perspective

[1] Ms.Vidhya.S, [2]Ms.Gayathri.G, [3]Ms.Madhumitha. M
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: This paper presents an environmental impact assessment of e-waste concrete from a life cycle perspective. As electronic waste (e-waste) continues to increase, finding sustainable solutions for its management is crucial. The study conducts a comprehensive life cycle assessment (LCA) to evaluate the environmental impacts associated with e-waste concrete, considering various stages from raw material extraction to end-of-life disposal. Environmental indicators, such as energy consumption, greenhouse gas emissions, and resource depletion, are quantified to assess the overall environmental sustainability of using e-waste in concrete production. The findings provide valuable insights into the environmental implications of e-waste concrete and contribute to informed decision-making for sustainable construction practices.

Keywords: E-waste concrete, environmental impact assessment, life cycle perspective, life cycle assessment (LCA), sustainability, energy consumption, greenhouse gas emissions, resource depletion, sustainable construction.

78.Title: Investigating Lime Stabilization as a Soil Improvement Technique for Soft Clay Deposits

[1]Mrs.Chithirai Selvi.N, [2]Mrs.Dennis flora.P, [3]Ms.Elamathi. G
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Soft clay deposits pose significant challenges for construction projects due to their high compressibility, low shear strength, and susceptibility to swell-shrink behavior. This abstract focuses on investigating lime stabilization as a soil improvement technique to enhance the engineering properties of soft clay deposits. Effectiveness of lime stabilization in mitigating the adverse effects of swell-shrink behavior in soft clay soils. Mechanisms and benefits of lime stabilization as a soil improvement technique for soft clay deposits. Guide engineers and practitioners in the selection and design of lime stabilization methods to enhance the stability and performance of construction projects on soft clay soils.

Keywords: lime stabilization, soil improvement, soft clay deposits, swell-shrink behavior, engineering properties, Atterberg limits, compaction tests, unconfined compression tests, lime content, curing time, curing conditions, long-term durability, field monitoring, geotechnical instrumentation, construction projects, stability, performance.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

79.Title: Evaluation of Fly Ash Stabilization for Reinforcing Soft Subgrades in Foundation Engineering

[1]Mr. Rajapandian. S, [2]Mrs.Dennis flora.P, [3]Ms. Vaithegi. V
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: In foundation engineering, soft subgrades pose significant challenges for constructing stable and durable structures. To address this issue, the use of fly ash as a stabilizing agent has gained attention due to its potential to improve the engineering properties of soft subgrades. Evaluate the effectiveness of fly ash stabilization in reinforcing soft subgrades for foundation engineering applications. A comprehensive set of geotechnical tests was performed to assess the stabilizing effects of fly ash on the soft subgrade soil.The shear strength of the stabilized soil also exhibited notable enhancement, rendering it more resistant to deformation and failure.

Keywords: Fly ash, Stabilization, Soft subgrades, Foundation engineering, Compaction, Shear strength, Compressibility.

80.Title: Investigation of the Mechanical and Thermal Properties of E-Waste Concrete

[1]Mrs.Chithirai Selvi.N, [2]Mr. Rajapandian. S, [3]Ms.Vaithegi .V
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: With the escalating production of electronic waste (e-waste) globally, there is a pressing need to explore environmentally responsible ways to manage and recycle this waste. The influence of e-waste content on the fresh and hardened properties of concrete, aiming to evaluate the feasibility and potential benefits of incorporating e-waste as a partial replacement for traditional aggregates in concrete production. The fresh properties of the concrete, such as workability and setting time, were assessed using standard tests. Subsequently, the hardened properties, including compressive strength, flexural strength, and durability, were analyzed to understand the long-term performance of e-waste concrete.

Keywords: E-waste, Concrete, Fresh properties, Hardened properties, Compressive strength, Flexural strength, Durability, Sustainable construction, Aggregates.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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81.Title: The role of concrete beam cover thickness in providing corrosion protection to the reinforcing steel in reinforced concrete beams.

[1]Ms.Vidhya.S, [2]Mr. Rajapandian.S
[1, 2]Assistant professor, Sri Bharathi Engineering College for Women

Abstract: The role of concrete beam cover thickness in providing corrosion protection to the reinforcing steel in reinforced concrete beams. Corrosion of the steel reinforcement is a major concern in concrete structures as it can lead to structural deterioration and reduced service life. Experimental tests are conducted to evaluate the corrosion performance of reinforced concrete beams with varying cover thicknesses. The results demonstrate that an adequate cover thickness is crucial in providing effective corrosion protection to the reinforcing steel. A thicker concrete cover creates a barrier against aggressive elements, minimizing the risk of corrosion and extending the durability of the beams.

Keywords: Concrete beam cover thickness, corrosion protection, reinforcing steel, durability, experimental tests, structural deterioration.

82.Title: Life Cycle Assessment of Green Concrete in Infrastructure Projects

[1]Dr.Thilagavathi.S, [2]Ms.Manju.R, [3]Ms.Ayesha Najum.M
[1]Principal, [2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: As sustainable construction practices gain prominence, the assessment of environmental impacts becomes crucial in infrastructure projects. A life cycle assessment (LCA) of green concrete in comparison to conventional concrete to evaluate its environmental performance throughout its life cycle. Various stages of concrete production, including raw material extraction, transportation, manufacturing, construction, and end-of-life scenarios. Environmental indicators, such as greenhouse gas emissions, energy consumption, water usage, and waste generation, are considered to assess the environmental footprint of green concrete.

Keywords: Life Cycle Assessment, LCA, Green Concrete, Infrastructure Projects, Sustainable Construction, Environmental Impacts, Greenhouse Gas Emissions, Energy Consumption, Water Usage, Waste Generation.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

83.Title: Sustainable Lightweight Concrete: Utilization of Industrial By-Products as Lightweight Aggregates

[1]Mrs.Priya.R, [2]Mr. Rajapandian. S, [3]Ms.Gomathi.S
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The sustainable production of lightweight concrete by utilizing industrial by-products as lightweight aggregates. The research investigates the feasibility and effectiveness of incorporating various industrial by-products, such as fly ash, slag, and rice husk ash, as lightweight aggregates in concrete mixtures. The utilization of industrial by-products as lightweight aggregates not only reduces the environmental footprint of concrete production but also enhances the properties of lightweight concrete, such as reduced density, improved thermal insulation, and enhanced fire resistance. Utilization of industrial by-products as lightweight aggregates to produce sustainable lightweight concrete, promoting a more environmentally friendly and resource-efficient construction industry.

Keywords: Sustainable lightweight concrete, industrial by-products, lightweight aggregates, mechanical properties, durability, environmental impact, fly ash, slag.

84.Title: Comparative Analysis of Glass Fiber Reinforced Structures with Traditional Building Materials

[1]Mrs.Kayalvizhi.R, [2]Mrs.Chithirai Selvi.N, [3]Ms.Karthika.T, [4]Ms.Raihanajasmine.A.S
[1, 2]Assistant professor, [3, 4]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Comparative analysis of glass fiber reinforced structures (GFRS) with traditional building materials to evaluate their performance, advantages, and limitations. The analysis considers factors such as strength, durability, cost-effectiveness, and environmental impact. GFRS applications in various construction projects are reviewed to highlight their successful implementation and benefits. GFRS offer several advantages over traditional materials, including high strength-to-weight ratio, corrosion resistance, and design flexibility. The need for further research and development to optimize GFRS manufacturing processes, improves fire resistance, and reduce costs.

Keywords: Glass fiber reinforced structures, traditional building materials, comparative analysis, performance evaluation, advantages, limitations, strength, durability, cost-effectiveness, environmental impact, case studies, design flexibility, fire resistance, research and development, sustainable construction.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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85.Title: Optimizing Concrete Beam Cover Thickness for Enhanced Durability Performance

[1] Ms.Gayathri.G, [2] Mrs.Kayalvizhi.R, [3]Ms.Syed Ali Fathima.G
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Optimizing the concrete beam cover thickness for enhanced durability performance. The durability of reinforced concrete beams is crucial for their long-term performance and resistance to environmental factors. Experimental investigations are conducted to determine the optimal cover thickness that can provide improved durability properties such as resistance to corrosion, carbonation, and chloride ingress. Various tests are performed to evaluate the durability performance of beams with different cover thicknesses. Optimized cover thickness can significantly enhance the durability performance of reinforced concrete beams.

Keywords: Concrete beam cover thickness, durability performance, corrosion resistance, carbonation resistance, chloride ingress, experimental investigations, optimized design.

86.Title: Flexural Strength of Reinforced Concrete Beams: Effect of Concrete Beam Cover Thickness

[1]Mrs.Dennis flora.P, [2]Mr. Rajapandian. S, [3]Ms.Vanmathi.M
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The influence of concrete beam cover thickness on the flexural strength of reinforced concrete beams. Experimental tests are conducted on beams with varying cover thicknesses to measure load-deflection response, cracking behavior, ultimate load-carrying capacity, and failure modes. Reveal a correlation between cover thickness and flexural strength, with an optimal thickness for enhanced performance. The results offer for optimizing design and detailing of concrete structures to achieve improved flexural strength.

Keywords: Flexural strength, reinforced concrete beams, concrete beam cover thickness, load-deflection response, cracking behavior, ultimate load-carrying capacity, failure modes, design optimization.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

87.Title: Optimization of Concrete Mix Proportions for High Strength

[1]Dr.Thilagavathi.S, [2]Mrs.Priya. R, 3Ms. Ananthi. V
[1]Principal, [2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The demand for high-strength concrete has been increasing with the growing need for durable and resilient structures. Achieving high strength in concrete requires careful optimization of mix proportions, taking into consideration various factors such as the type and proportion of cementitious materials, aggregates, water-cement ratio, and chemical admixtures. This study focuses on the optimization of concrete mix proportions to attain high strength while maintaining adequate workability and durability.Different combinations of cement, supplementary cementitious materials, aggregates, and chemical admixtures were tested to identify the most suitable proportions. The fresh properties, including workability and setting time, were evaluated to ensure the mixtures' practical applicability.

Keywords: Concrete mix proportions, high strength, supplementary cementitious materials, aggregates, chemical admixtures, workability, compressive strength, durability, sustainable construction.

88.Title: Influence of Curing Duration on Compressive Strength Development of Concrete

[1]Ms.Gayathri.G, [2]Ms.Vidhya.S, [3]Ms. Karthika. S, [4]Ms.Lakshmi.A
[1, 2]Assistant professor, [3, 4]UG.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Curing is a crucial phase in concrete production that significantly influences the development of its mechanical properties. This study investigates the influence of curing duration on the compressive strength development of concrete. Concrete mixtures with varying water-cement ratios and supplementary cementitious materials were prepared and subjected to different curing periods.The compressive strength of the concrete was measured at regular intervals during the curing process.

Keywords: Curing duration, compressive strength, concrete, hydration, supplementary cementitious materials, pozzolanic materials, microstructure, curing time, mechanical properties, durability.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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89.Title: Assessment of Self-Healing Concrete with Encapsulated Polymeric Healing Agents

[1]Mrs.Priya.R, [2]Ms.Gayathri.G, [3]Ms.Alamelu Mangai. M
[1]Assistant professor, [3, 4]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Self-healing concrete is an innovative approach to improve the durability and service life of concrete structures by autonomously repairing micro-cracks and damage. This study presents an assessment of self-healing concrete with encapsulated polymeric healing agents. The healing agents, typically microcapsules containing polymeric materials, are incorporated into the concrete mix to release healing agents when cracks form, promoting autonomous healing. The polymeric materials reacted with the surrounding cementitious matrix, forming a gel-like substance that closed the cracks and restored the concrete's integrity.
Keywords: Self-healing concrete, encapsulated polymeric healing agents, microcapsules, crack closure, autonomous healing, crack-healing tests, durability, service life, concrete structures, sustainable infrastructure.

90. Title: Utilization of Recycled Aggregates in High-Strength Concrete

[1]Ms.Vidhya.S, [2]Mrs.Chithirai Selvi.N, [3]Ms.Praveena. M
[1, 2]Assistant professor, [3]U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: The growing demand for sustainable construction practices has led to increased interest in the utilization of recycled materials in concrete production. This study explores the feasibility of incorporating recycled aggregates in high-strength concrete to achieve both environmental benefits and structural performance. Various concrete mixtures were prepared by replacing a portion of natural aggregates with recycled aggregates, and their properties, including compressive strength, workability, and durability, were extensively investigated.High-strength concrete mixtures were designed with varying proportions of recycled aggregates, cementitious materials, and chemical admixtures. A comprehensive testing program was conducted to evaluate the fresh and hardened properties of the concrete, focusing on the compressive strength development.
Keywords: Recycled aggregates, high-strength concrete, sustainable construction, compressive strength, workability, durability, chemical admixtures, resource conservation, construction and demolition waste.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

91.Title: Challenges and opportunities in managing electronic waste (e-waste) and strategies for its proper disposal and recycling.

[1]Ms. G. Srisowmiya
[1]Assistant professor, Department of Civil Engineering,
Shanmuganathan Engineering College

Abstract: The increasing proliferation of electronic devices and technology has led to a significant rise in electronic waste (e-waste) generation, posing formidable challenges to waste management and environmental sustainability. This study examines the challenges and opportunities in managing e-waste and explores strategies for its proper disposal and recycling. The research presents a comprehensive review of the current state of e-waste management, highlighting the potential environmental and health hazards associated with improper disposal practices. The development of policies, regulations, and extended producer responsibility (EPR) schemes to hold manufacturers accountable for e-waste management is discussed as a critical aspect of a comprehensive e-waste management strategy.

Keywords: Electronic waste (e-waste), waste management, recycling, hazardous materials, resource recovery, sustainability, extended producer responsibility (EPR), environmental impact, responsible disposal, public awareness.

92.Title: Blockchain-Enhanced Quality of Service Management for Communication Networks

[1]Mrs.V.Kavitha, [2]Mr.Udhayanan, [3]Ms Abirami.S, [4]Ms Abisheka.S
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: Ensuring quality of service (QoS) in communication networks is crucial to meet the increasing demands of diverse applications. This paper presents a blockchain-enhanced QoS management framework for communication networks. The framework utilizes blockchain technology to enable transparent and decentralized QoS monitoring, verification, and enforcement. QoS-related metrics and service level agreements are recorded on the blockchain, ensuring transparency and accountability. Smart contracts are employed to automate QoS monitoring and enforcement processes, enhancing efficiency and reducing manual interventions. Experimental evaluations demonstrate that the proposed framework improves QoS management, promotes fairness, and facilitates service-level agreements in communication networks.

Keywords: Blockchain, Quality of Service, Communication Networks, Transparency, Accountability, Smart Contracts.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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93.Title: Advanced Frequency Synthesizers for Microwave Radar Systems

[1] Mrs.T.K.Mohanapriya, [2]Mr.Udhayanan, [3]Ms Gowsalya.D, [4]Ms Bavadharani.A
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents advanced frequency synthesizer designs for microwave radar systems. Frequency synthesizers are critical components in radar systems, providing stable and accurate signals for various radar functions, including transmission, reception, and signal processing. The paper explores modern frequency synthesis techniques such as direct digital synthesis (DDS), fractional-N synthesis, and phase-locked loop (PLL) architectures. Design considerations include phase noise, spurious signals, frequency agility, and settling time. Various circuit topologies and approaches for noise reduction and phase noise optimization are investigated. The performance of the proposed frequency synthesizers is evaluated through simulations and practical measurements. The presented designs offer improved frequency synthesis capabilities, making them suitable for advanced microwave radar systems.

Keywords: Microwave engineering, Frequency synthesizers, Radar systems, Direct digital synthesis (DDS), Fractional-N synthesis, Phase-locked loop (PLL), Phase noise, Spurious signals, Frequency agility, Settling time, Circuit topologies, Simulation, Measurement.

94.Title: Mitigation of Electromagnetic Interference in Transmission Lines and Waveguides

[1]Mr S.Udhayanan, [2]Mrs. V.Kavitha, [3]Jeevitha.U, [4]Ms Maheswari.V
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper addresses the mitigation of electromagnetic interference (EMI) in transmission lines and waveguides. EMI can significantly degrade the performance of electronic systems and introduce unwanted noise, distortion, and signal corruption. The proposed study focuses on identifying the sources of EMI, analyzing their impact on the transmission lines, and developing effective mitigation techniques. Strategies such as shielding, filtering, and grounding are explored to minimize the interference and enhance the signal integrity. The effectiveness of these techniques is evaluated through numerical simulations and experimental measurements. The results demonstrate significant reduction in EMI, leading to improved system performance and reliability.

Keywords: Electromagnetic interference, EMI, Transmission line, Waveguide, Signal integrity, Mitigation

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

95.Title: QoS-Aware Routing Protocol for Multimedia Applications in MANETs

[1]Mrs M.Suganya, [2]Mr. K.A.Muthulakshmi, [3]Shanmugapriya.R, [4]Ms Shiyamala.E
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Multimedia applications have stringent Quality of Service (QoS) requirements, including low latency, high bandwidth, and minimal packet loss. This paper presents a QoS-aware routing protocol specifically designed for supporting multimedia applications in Mobile Ad hoc Networks (MANETs). The protocol takes into account the dynamic nature of MANETs and the diverse QoS requirements of multimedia traffic. It incorporates QoS metrics such as delay, bandwidth, and jitter in route selection decisions, aiming to establish routes that satisfy the QoS requirements of multimedia applications. Simulation results show that the proposed protocol achieves significant improvements in QoS metrics compared to existing routing protocols for multimedia applications in MANETs.

Keywords: MANETs, multimedia applications, QoS-aware routing, Quality of Service, latency, bandwidth, packet loss.

96.Title: Analysis and Mitigation of Electromagnetic Interference in Power Electronic Systems

[1]Mrs.T.Kanimozhi, [2]Mrs.V.Kavitha
[1]Asst. Prof., Dept. of ECE, Shanmuganathan Engineering College, Pudkukkotai.
[2]Asst. Prof, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper addresses the analysis and mitigation of electromagnetic interference (EMI) in power electronic systems. Power electronic devices, such as converters and inverters, are known sources of EMI that can degrade the performance and reliability of adjacent electronic systems. In this study, we investigate the mechanisms of EMI generation in power electronic systems and propose effective mitigation techniques. We analyze the impact of various factors, including switching frequency, layout design, shielding, and filtering, on EMI emissions. Furthermore, we discuss the design considerations for power electronic systems to minimize EMI generation and improve electromagnetic compatibility (EMC). The findings of this research provide valuable insights for engineers working on power electronics, helping them develop EMI-resilient systems for diverse applications.

Keywords: Electromagnetic interference, Power electronic systems, EMI mitigation, Converters, Inverters, Switching frequency, Layout design, Shielding, Filtering, Electromagnetic compatibility.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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97.Title: Privacy-Preserving Machine Learning: A Differential Privacy Framework for Data Sharing

[1]Ms.K.A.Muthulakshmi, [2]Mr. S. Udhayanan, [3]Jagadeswari .K, [4]Ms Meenakshi .R
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: With the increasing demand for data-driven applications, privacy concerns have become paramount in machine learning and data science. This paper proposes a differential privacy framework for privacy-preserving machine learning, specifically addressing the challenge of sharing sensitive data. We develop algorithms that inject controlled noise into the training process, ensuring that individual data points remain private while preserving the utility of the model. We investigate different mechanisms for achieving differential privacy, including randomized response and local differential privacy. Through empirical evaluation, we demonstrate that our framework achieves a balance between privacy and utility, enabling secure data sharing and collaborative learning in sensitive domains.

Keywords: privacy-preserving machine learning, differential privacy, data sharing, sensitive data, privacy concerns.

98.Title: Emerging Nano-Electromechanical Systems (NEMS) for Sensing and Actuation

[1]Mrs. R. Yogeshwari, [2]Mrs V.Nithyapoorani, [3]Manimegalai .S, [4]Ms Saradha .S
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents an overview of emerging nano-electromechanical systems (NEMS) and their applications in sensing and actuation. NEMS devices, with their nanoscale dimensions and unique mechanical properties, offer exciting opportunities for various sensing and actuation applications. We discuss the design principles, fabrication techniques, and operating mechanisms of NEMS sensors and actuators. Examples of NEMS devices include resonators, cantilevers, and nanoscale switches. Furthermore, we explore their integration with electronics and the potential for achieving high sensitivity, low power consumption, and compact form factors. Through comprehensive analysis, we highlight the advantages and challenges associated with NEMS-based sensing and actuation systems and provide insights into future directions and potential applications in diverse fields, such as healthcare, environmental monitoring, and robotics.

Keywords: nano-electromechanical systems (NEMS), sensing, actuation, resonators, cantilevers, nanoscale switches.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

99.Title: IoT-Enabled Home Automation System with NodeMCU and AI-Based Energy Optimization

[1]Ms M. Suganya, [2]Mrs. M.Suganya, [3]Shiyamala.E, [4]Ms Siva Bharathi.P
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents an innovative approach to home automation using the NodeMCU microcontroller and advanced technologies. The proposed system integrates Internet of Things (IoT) principles to enable seamless control and monitoring of various smart devices within a home environment. NodeMCU, equipped with Wi-Fi capabilities, acts as the central hub to facilitate real-time communication and data exchange between the smart devices and the cloud server. Additionally, artificial intelligence (AI) algorithms are employed to optimize energy consumption and enhance the overall efficiency of the home automation system. The experimental results demonstrate significant energy savings and improved user experience, making the system a promising solution for smart homes.

Keywords: Embedded Systems, NodeMCU, IoT, Home Automation, Artificial Intelligence, Energy Optimization, Smart Devices, Wi-Fi, Cloud Server.

100.Title: Secure Communication in Embedded Systems using NodeMCU and Blockchain Technology

[1]Mr S.Udhayanan, [2]Mrs.NithyaPoorani, [3]Agalya.A, [4]Ms Atchaya.G
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: In this paper, we propose a novel approach to enhance the security of communication in embedded systems by integrating NodeMCU with blockchain technology. With the growing prevalence of IoT devices, ensuring secure data exchange and protection against potential attacks is of paramount importance. The proposed system employs blockchain to create a decentralized and tamper-resistant communication network, ensuring data integrity and confidentiality. NodeMCU acts as a gateway, facilitating secure communication between IoT devices and the blockchain network. The experimental results demonstrate the effectiveness of the proposed solution in mitigating security risks, making it suitable for a wide range of applications in the field of embedded systems.

Keywords: Embedded Systems, NodeMCU, Blockchain Technology, Secure Communication, IoT, Data Integrity, Decentralization, Tamper-Resistance.

Dr. S.THILAGAVATHI M.E.,Ph.D.
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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101.Title: Real-Time Environmental Monitoring System using NodeMCU and Wireless Sensor Networks

[1]Mrs. M.Sathya, [2]Mrs.U.Ida Perica, [3]Vinthiya.R, [4]Ms Subashini.T
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents the development of a real-time environmental monitoring system utilizing NodeMCU and wireless sensor networks (WSNs). The system is designed to collect and analyze environmental data, such as temperature, humidity, air quality, and more, from various locations. NodeMCU is employed as a low-cost and power-efficient solution to gather data from the sensor nodes and transmit it to a centralized server. The data is then processed and visualized in real-time, enabling users to monitor environmental conditions remotely. The scalability and versatility of the proposed system make it suitable for applications in smart cities, agriculture, and industrial settings.

Keywords: Embedded Systems, NodeMCU, Wireless Sensor Networks, Real-Time Monitoring, Environmental Monitoring, IoT, Data Visualization, Smart Cities, Agriculture.

102.Title: Edge AI Implementation on NodeMCU for Anomaly Detection in Industrial Processes

[1]Mrs. M.Sathya, [2]Mrs.V.Kavitha, [3]Vinthiya.R, [4]Ms Subashini.T
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: In this paper, we explore the potential of Edge AI on NodeMCU for anomaly detection in industrial processes. Industrial IoT environments require rapid and accurate detection of anomalies to prevent costly downtime and ensure efficient operations. The proposed system leverages NodeMCU's computational capabilities to perform real-time data processing and analysis at the edge of the network. Machine learning algorithms are deployed on NodeMCU to identify anomalies in sensor data generated by industrial equipment. The results show that the Edge AI implementation on NodeMCU achieves high accuracy and low latency, making it a viable solution for industrial automation and predictive maintenance.

Keywords: Embedded Systems, NodeMCU, Edge AI, Anomaly Detection, Industrial IoT, Machine Learning, Data Processing, Predictive Maintenance, Industrial Automation.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

103.Title: Millimeter-Wave Antenna Design for 5G Communication Systems using Metamaterial Substrates

[1]Mrs M.Suganya, [2]Ms. K.A.Muthulakshmi, [3]Shanmugapriya.R, [4]Ms Shiyamala.E
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper presents the design and analysis of a millimeter-wave antenna for 5G communication systems employing advanced metamaterial substrates. With the increasing demand for high data rates and low-latency connectivity in 5G networks, millimeter-wave frequencies offer promising solutions. The proposed antenna leverages metamaterial substrates to achieve enhanced gain, reduced size, and improved radiation characteristics. The design process involves simulations and optimization techniques to achieve the desired performance metrics. The experimental results demonstrate the effectiveness of the proposed antenna in enabling high-speed and reliable communication in 5G networks.

Keywords: Antenna Design, Millimeter-Wave, 5G Communication, Metamaterial Substrates, High Gain, Low Latency, Optimization Techniques.

104.Title: Compact Dual-Band MIMO Antenna Design for IoT Applications using Fractal Geometries

[1]Mr M.Muthumanickam, [2]Mr. M.Palaniappan
[1, 2]Asst. Prof., Dept. of ECE, Shanmuganathan Engineering College, Pudkukkotai

Abstract: This paper presents a compact dual-band Multiple-Input Multiple-Output (MIMO) antenna design for Internet of Things (IoT) applications, incorporating fractal geometries. IoT devices require small form factor antennas capable of operating in multiple frequency bands to support diverse communication protocols. The proposed antenna utilizes fractal geometries to achieve wideband characteristics and efficient space utilization. The design is further optimized for MIMO applications, enabling reliable and concurrent communication between multiple devices. The experimental results demonstrate the suitability of the proposed antenna for compact and high-performance IoT applications.

Keywords: Antenna Design, Dual-Band, MIMO, IoT Applications, Fractal Geometries, Wideband, Compact Antennas.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

105.Title: Reconfigurable Smart Antenna Design using Software-Defined Radio (SDR) for Cognitive Radio Networks

[1]Mrs. R. Yogeshwari, [2]Mrs M.Suganya, [3]Manimegalai .S, [4]Ms Saradha .S
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper presents the development of a reconfigurable smart antenna using Software-Defined Radio (SDR) technology for Cognitive Radio Networks (CRNs). CRNs enable dynamic spectrum access, requiring antennas capable of adapting to changing communication requirements. The proposed smart antenna incorporates SDR technology to dynamically adjust its beamforming characteristics, enabling efficient utilization of available spectrum. The design also includes cognitive algorithms to intelligently select the best communication channels. The performance of the reconfigurable smart antenna is evaluated through simulations and experimental tests, demonstrating its effectiveness in enhancing spectrum utilization and overall network performance in CRNs.

Keywords: Antenna Design, Reconfigurable Smart Antenna, Software-Defined Radio, Cognitive Radio Networks, Dynamic Spectrum Access, Beamforming, Spectrum Utilization.

106.Title: Circularly Polarized High-Gain Antenna Array Design using Reflectarrays for Satellite Communication Systems

[1]Ms.M.Mercy Anitha, [2]Mr S.Udhayanan, [3]Ms.Kaviya. S, [4]Ms Vennila .K
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper proposes a circularly polarized high-gain antenna array design using reflectarrays for satellite communication systems. Satellite communication requires high-gain antennas to ensure reliable and long-range connectivity. The proposed design incorporates reflectarrays to achieve high-gain and circular polarization simultaneously, making it suitable for satellite communication applications. The antenna array is optimized to achieve a wide bandwidth and precise beam control for diverse satellite communication scenarios. The experimental results validate the performance of the proposed antenna array in providing robust and efficient satellite communication links.

Keywords: Antenna Design, Circularly Polarized Antenna, High-Gain Antenna Array, Reflectarrays, Satellite Communication Systems, Wideband Antennas, Beam Control

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

107.Title: 5G mmWave Beamforming for Enhanced Wireless Communication in Dense Urban Environments

[1]Mr Manikandan.T, [2]Mrs .M.Sathya
[1]Asst. Prof., Dept. of ECE, Mother Therasa College of Engineering and Technology, Pudkukkotai.
[2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper investigates the use of millimeter-wave (mmWave) beamforming technology in 5G wireless communication systems to address the challenges posed by dense urban environments. With the proliferation of mobile devices and the increasing demand for high-speed data, urban areas experience severe network congestion and interference. The proposed approach leverages advanced beamforming techniques at mmWave frequencies to enhance signal directionality, reduce interference, and improve overall network capacity and coverage. Extensive simulations and field trials demonstrate the effectiveness of the proposed solution in providing reliable and high-performance wireless communication in dense urban settings.

Keywords: Wireless Communication, 5G, mmWave, Beamforming, Dense Urban Environments, Interference Mitigation, Network Capacity, Field Trials.

108.Title: Secure and Energy-Efficient IoT Communication using Blockchain in Wireless Sensor Networks

[1]Mr R.Nanthini, [2]Ms Nickkola.S
[1, 2]Asst. Prof., Dept. of ECE, SMR East Coast College of Engineering and Technology, Thanjavur

Abstract: This paper introduces a novel approach to ensure secure and energy-efficient communication in the Internet of Things (IoT) using blockchain technology in wireless sensor networks (WSNs). IoT devices are often resource-constrained and susceptible to security breaches. The proposed solution incorporates blockchain to create a decentralized and tamper-resistant communication infrastructure, ensuring data integrity and authentication in WSNs. Furthermore, smart contracts are utilized to manage energy consumption and optimize network resources. The experimental results validate the effectiveness of the proposed approach in achieving secure and energy-efficient IoT communication in various applications.

Keywords: Wireless Communication, IoT, Blockchain, Wireless Sensor Networks, Data Integrity, Energy-Efficient Communication, Smart Contracts, Security.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

109.Title: Massive MIMO Systems for Future Wireless Communication: Challenges and Opportunities

[1]Mrs. R. Yogeshwari, [2]Mrs V.Nithyapoorani, [3]Manimegalai .S, [4]Ms Saradha .S
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents an in-depth analysis of massive Multiple-Input Multiple-Output (MIMO) systems for future wireless communication networks. As the demand for higher data rates and improved spectral efficiency grows, massive MIMO emerges as a promising solution. The paper discusses the challenges and opportunities associated with implementing massive MIMO in real-world scenarios. It explores advanced signal processing techniques, such as precoding and channel estimation, to overcome the practical limitations of massive MIMO. The study also provides insights into the performance gains and benefits of deploying massive MIMO systems in next-generation wireless communication networks.

Keywords: Wireless Communication, Massive MIMO, Signal Processing, Precoding, Channel Estimation, Spectral Efficiency, Next-Generation Networks.

110.Title: Intelligent Resource Management in 6G Wireless Communication Networks using AI and Reinforcement Learning

[1]Ms.M.Mercy Anitha, [2]Mr.Udhayanan, [3]Meenal .T, [4]Ms Sargunavalli .C
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents a cutting-edge approach to resource management in 6G wireless communication networks, integrating artificial intelligence (AI) and reinforcement learning techniques. With the increasing complexity and heterogeneity of future wireless networks, traditional resource allocation methods face significant challenges. The proposed intelligent resource management system employs AI and reinforcement learning algorithms to dynamically optimize resource allocation, spectrum utilization, and network performance in real-time. Through simulations and experiments, the paper demonstrates the superior efficiency and adaptability of the proposed approach, making it a promising solution for 6G wireless communication networks.

Keywords: Wireless Communication, 6G, Intelligent Resource Management, AI, Reinforcement Learning, Resource Allocation, Spectrum Utilization, Network Performance

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PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

111.Title: High-Speed Convolutional Codes for 5G and Beyond: Design and Performance Analysis

[1]Mr S.Ganesan, [2]Mr K.Ramachandran
[1, 2]Asst. Prof., Dept. of ECE, Mountzion College of Engineering and Technology, Pudkukkotai.

Abstract: This paper explores the design and performance analysis of high-speed convolutional codes for 5G and beyond in digital communication systems. With the ever-increasing demand for higher data rates and reliable communication, advanced error correction codes are essential. The proposed convolutional codes leverage advanced technologies and optimized encoding and decoding algorithms to achieve higher coding rates and improved error correction capabilities. The performance of the codes is evaluated through simulations and comparisons with existing coding schemes, demonstrating their suitability for next-generation wireless communication systems.

Keywords: Convolutional Codes, Digital Communication, 5G and Beyond, High-Speed Codes, Error Correction, Encoding, Decoding, Performance Analysis.

112.Title: Deep Learning-Based Decoding of Convolutional Codes for Ultra-Reliable Low-Latency Communication

[1]Mr P.Ramesh, [2]Mr S.Udhayanan
[1]Asst. Prof., Dept. of ECE, Sudharsan Engineering College, Pudkukkotai.
[2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper presents a novel approach to decoding convolutional codes using deep learning techniques for ultra-reliable low-latency communication (URLLC) applications. In URLLC scenarios, stringent reliability and low-latency requirements pose challenges for conventional decoding methods. The proposed solution employs deep neural networks to perform soft decoding of convolutional codes, enabling improved error correction performance and reduced decoding latency. The paper evaluates the effectiveness of the deep learning-based decoding approach through simulations, showcasing its potential for reliable and low-latency communication in critical applications.

Keywords: Convolutional Codes, Deep Learning, Decoding, Ultra-Reliable Low-Latency Communication, Soft Decoding, Error Correction, Neural Networks.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

113.Title: Convolutional Codes with Turbo Processing for Spectrally Efficient Communication in Cognitive Radio Networks

[1]Mrs G.Malathi, [2]Mr. M.Srinivasan
[1, 2]Asst. Prof., Dept. of ECE, Chendhuran College of engineering and Technology, Pudkukkotai

Abstract: This paper introduces convolutional codes with turbo processing for achieving spectrally efficient communication in cognitive radio networks (CRNs). CRNs allow dynamic spectrum access, necessitating efficient use of available spectrum. The proposed codes utilize turbo processing techniques to enhance the error correction capabilities and achieve higher spectral efficiency in CRNs. The paper evaluates the performance of the codes in terms of bit error rate and throughput through simulations in varying channel conditions. The results demonstrate the suitability of the proposed convolutional codes for spectrally efficient communication in cognitive radio environments.

Keywords: Convolutional Codes, Turbo Processing, Cognitive Radio Networks, Spectrally Efficient Communication, Dynamic Spectrum Access, Error Correction, Bit Error Rate, Throughput.

114.Title: Convolutional Codes with LDPC Puncturing for Bandwidth-Efficient Communication in Satellite Networks

[1]Mrs. Aaratharini, [2]Ms Parameshwari.K
[1, 2]Asst. Prof., Dept. of ECE, Chendhuran College of engineering and Technology, Pudkukkotai

Abstract: This paper presents the use of convolutional codes with Low-Density Parity-Check (LDPC) puncturing for achieving bandwidth-efficient communication in satellite networks. Satellite communication systems often face bandwidth constraints, requiring efficient coding schemes. The proposed approach combines the error correction capabilities of convolutional codes with the bandwidth optimization provided by LDPC puncturing. The paper evaluates the coding performance in terms of coding gain and bandwidth efficiency through simulations. The results demonstrate the effectiveness of the proposed convolutional codes with LDPC puncturing in achieving efficient and reliable communication in satellite networks.

Keywords: Convolutional Codes, LDPC Puncturing, Satellite Networks, Bandwidth-Efficient Communication, Error Correction, Coding Gain, Spectral Efficiency.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

115.Title: Machine Learning-Enhanced Digital Modulation Techniques for 6G Communication Systems

[1]Ms.M.Mercy Anitha, [2]Ms K.A.Muthulakshmi, [3]Thenmozhi .K, [4]Ms Vennila .K
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper investigates the integration of machine learning techniques with digital modulation in 6G communication systems to overcome the challenges posed by high data rates and dynamic channel conditions. As 6G networks strive for unprecedented levels of connectivity and data throughput, traditional digital modulation techniques face limitations in handling complex fading channels and interference. The proposed approach utilizes advanced machine learning algorithms, such as deep neural networks, to optimize modulation schemes dynamically based on real-time channel feedback. The performance of the machine learning-enhanced modulation techniques is evaluated through simulations and compared with conventional methods, demonstrating superior performance in 6G communication scenarios.

Keywords: Digital Modulation, 6G Communication, Machine Learning, Deep Neural Networks, Dynamic Modulation, Fading Channels, Interference Mitigation, Performance Evaluation.

116.Title: Adaptive Hierarchical Modulation for Energy-Efficient Communication in IoT Networks

[1]Mrs M.Suganya, [2]Mrs. U.Ida Perica, [3]Aarthi .M, [4]Ms Abirami .C
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri .Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents an adaptive hierarchical modulation scheme designed to improve energy efficiency in Internet of Things (IoT) networks. As IoT devices often operate on limited battery power, efficient use of energy resources is crucial for prolonged network lifetime. The proposed hierarchical modulation technique dynamically adjusts the modulation order based on the channel conditions and data rate requirements of IoT devices. By utilizing advanced technologies, such as cognitive radio and dynamic spectrum access, the scheme enables flexible and energy-efficient communication, extending the battery life of IoT devices while maintaining reliable data transmission.

Keywords: Digital Modulation, IoT Networks, Energy Efficiency, Hierarchical Modulation, Cognitive Radio, Dynamic Spectrum Access, Battery Life, IoT Communication.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

117.Title: MIMO-OFDM with Spatial Modulation for High-Capacity 5G Wireless Communication Systems

[1]Mrs. G. Vidhya, [2]Mrs. M.Mercy Anitha, [3]Bavadharani .M, [4]Ms Divyabharathi .S
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper explores the combination of Multiple-Input Multiple-Output Orthogonal Frequency Division Multiplexing (MIMO-OFDM) with spatial modulation techniques to achieve high-capacity wireless communication in 5G systems. The growing demand for increased data rates and reliable connectivity necessitates innovative solutions to exploit spatial diversity effectively. The proposed approach leverages MIMO-OFDM's robustness and spatial modulation's capacity to encode additional information using antenna indices. Advanced technologies, such as channel estimation and precoding, are employed to enhance system performance. The paper presents extensive simulations to validate the advantages of the proposed MIMO-OFDM with spatial modulation scheme for 5G wireless communication.

Keywords: MIMO-OFDM, Spatial Modulation, 5G Communication, High Capacity, Spatial Diversity, Channel Estimation, Precoding, Wireless Communication.

118.Title: Non-Orthogonal Multiple Access with Index Modulation for Massive Connectivity in Beyond 5G Networks

[1]Mr R.Vijayaragavan, [2]Mr S.Udhayanan
[1]Asst. Prof., Dept. of ECE, Mountzion College of Engineering and Technology, Pudkukkotai.
[2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper proposes the use of Non-Orthogonal Multiple Access (NOMA) with index modulation for achieving massive connectivity in beyond 5G networks. Beyond 5G networks aim to support a massive number of connected devices, posing challenges for conventional multiple access techniques. The proposed NOMA with index modulation technique enables simultaneous communication among multiple devices in the same time-frequency resource, enhancing spectral efficiency and accommodating a large number of connections. The paper presents comprehensive simulations to evaluate the performance of the NOMA with index modulation scheme, highlighting its potential for massive connectivity in future wireless communication systems.

Keywords: Non-Orthogonal Multiple Access, Index Modulation, Beyond 5G Networks, Massive Connectivity, Spectral Efficiency, Multiple Device Communication, Wireless Communication

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

119.Title: Exploring Sub-Threshold Circuit Design for Ultra-Low Power VLSI Applications

[1]Mrs. G. Vidhya, [2]Mrs. M.Sathya, [3]Sankavi M, [4]Ms Shiyamala.E
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: With the increasing demand for energy-efficient and battery-operated electronic devices, sub-threshold circuit design has emerged as a promising solution in VLSI design. This paper delves into the exploration and optimization of sub-threshold circuits to achieve ultra-low power consumption while maintaining acceptable performance levels. We present an in-depth analysis of sub-threshold transistor behavior, leakage currents, and process variations that affect circuit performance. Furthermore, we propose novel design techniques and architectural considerations to overcome the challenges associated with sub-threshold operation. The results of this study showcase the immense potential of sub-threshold circuits in enabling the development of energy-efficient VLSI systems for a wide range of applications.

Keywords: VLSI Design, Sub-Threshold Circuits, Ultra-Low Power, Energy-Efficient, Advanced Technologies

120.Title: Design and Analysis of 3D-Integrated VLSI Circuits Using Silicon Interposers

[1]Mrs NithyaPoorani, [2] Mrs. M.Sathya, [3]Roja.A, [4]Ms Shanmugapriya.R
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: The relentless pursuit of higher integration density and improved system performance has led to the evolution of 3D-integrated VLSI circuits using silicon interposers. This paper presents a comprehensive study on the design and analysis of such 3D-integrated circuits, taking advantage of the advanced technologies in the semiconductor industry. We explore various stacking strategies, thermal management techniques, and signal integrity considerations in 3D integration. Additionally, we investigate the potential benefits of heterogeneous integration through the combination of different technology nodes and device technologies. The findings of this research contribute to a deeper understanding of 3D-IC design challenges and pave the way for the development of highly efficient and compact VLSI systems

Keywords: VLSI Design, 3D Integration, Silicon Interposers, Heterogeneous Integration, Advanced Technologies

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

121.Title: Mitigating Process Variations in Advanced VLSI Designs through Machine Learning Techniques

[1]Mrs. G. Vidhya, [2]Mrs. V.Kavitha, [3]Pazhaniyammal.R, [4]Ms Priyanka.E
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Process variations have become a critical challenge in advanced VLSI design nodes due to decreasing feature sizes and increasing complexity. In this paper, we propose a novel approach to mitigate process variations using machine learning techniques. We demonstrate how machine learning models can accurately predict process variation patterns and assist in designing robust VLSI circuits. By leveraging advanced technologies, we incorporate process variation-aware design methodologies at various stages of the VLSI design flow. The experimental results show significant improvements in yield, performance, and power consumption compared to traditional design methodologies. This work represents a significant step towards ensuring the manufacturability and reliability of VLSI designs in the face of increasing process variability.

Keywords: VLSI Design, Process Variations, Machine Learning, Advanced Technologies, Design Optimization

122.Title: Design and Implementation of Neuromorphic VLSI Systems for Cognitive Computing

[1] Mr S.Udhayanan, [2]Mrs. U.Ida Perica, [3]Deepa.N, [4]Ms Dharaniya.A
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Neuromorphic computing has emerged as a promising paradigm for cognitive computing, mimicking the brain's neural processes to enable efficient and intelligent data processing. This paper focuses on the design and implementation of neuromorphic VLSI systems using advanced technologies to realize spiking neural networks. We investigate the hardware requirements and architectural considerations for efficiently simulating and emulating neural behaviors in VLSI circuits. Furthermore, we explore novel approaches to optimize energy efficiency, neural plasticity, and real-time learning capabilities in neuromorphic VLSI systems. The outcomes of this research contribute to the development of specialized hardware for cognitive computing tasks, opening up new opportunities in artificial intelligence and brain-inspired computing applications.

Keywords: VLSI Design, Neuromorphic Computing, Cognitive Computing, Advanced Technologies, Spiking Neural Networks

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

123.Title: Enhancing Energy-Efficiency in IoT Systems through Adaptive Actuator Control

[1]Ms Roshi.R, [2]Ms V.NithyaPoorani
[1]Asst. Prof., Dept. of ECE, Chendhuran College of engineering and Technology, Pudkukkotai
[2]Asst. Prof., Dept. of ECE, Chendhuran College of engineering and Technology, Pudkukkotai

Abstract: This paper proposes an innovative approach to optimize energy consumption in IoT systems by intelligently controlling actuators based on real-time sensor data. We present an adaptive actuator control mechanism that dynamically adjusts actuation parameters, such as duty cycles and operation modes, to achieve a balance between responsiveness and energy efficiency. Experimental results demonstrate significant energy savings in various IoT applications, such as smart home automation and industrial monitoring.

Keywords: IoT, Sensors, Actuators, Energy Efficiency, Adaptive Control.

124.Title: Secure and Scalable Sensor Data Fusion for Reliable Decision-Making in IoT Environments

[1]Mrs. M.Sathya, [2]Mrs.M Mercy Anitha, [3]Maragathalakshmi.S, [4]Ms Subashini.T
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: In this paper, we address the challenges of sensor data fusion in large-scale IoT deployments. We propose a secure and scalable data fusion framework that aggregates sensor data from heterogeneous sources while ensuring data integrity and authenticity. The framework utilizes advanced cryptographic techniques and distributed computing principles to enable reliable decision-making in IoT environments. Our experimental evaluation showcases the system's robustness against various attacks and its capability to support a high number of connected sensors.

Keywords: IoT, Sensors, Data Fusion, Security, Scalability, Decision-Making.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

125.Title: Efficient Resource Allocation in IoT Networks using Sensor-Actuator Coordination

[1] Mrs. T.K.Mohanapriya, [2]Mrs.M.Suganya, [3]Ms Manohari.M, [4]Ms Ramya.P
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This research investigates the problem of resource allocation in IoT networks to optimize performance metrics like throughput, latency, and energy consumption. We propose a novel sensor-actuator coordination scheme that dynamically allocates network resources based on sensor data and actuator requirements. By leveraging machine learning techniques, our approach adapts to changing network conditions, enhancing overall system efficiency. Experimental results demonstrate substantial improvements in resource utilization across various IoT scenarios.

Keywords: IoT, Sensors, Actuators, Resource Allocation, Coordination, Machine Learning.

126.Title: Self-Powered Sensors for Sustainable IoT Applications: Energy Harvesting and Storage Solutions

[1]Mrs.V.Kavitha, [2]Mrs.M.Sathya, [3]Ms Kavya.C, [4]Ms Keerthana.G
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: The paper presents a comprehensive study on self-powered sensor technologies that leverage energy harvesting and storage solutions for sustainable IoT applications. We survey various energy sources, including solar, kinetic, and thermal, and explore their integration with energy storage devices such as supercapacitors and rechargeable batteries. Our findings provide insights into the feasibility and performance of self-powered sensors, paving the way for green and long-lasting IoT deployments.

Keywords: IoT, Sensors, Energy Harvesting, Energy Storage, Sustainability, Self-Powered Sensors.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

127.Title: Advanced Sensing Techniques for Real-Time Environmental Monitoring in Smart Cities

[1]Mrs. T.K.Mohanapriya, [2]Mr.Udhayanan, [3]Ms Kanimozhi.D, [4]Ms Maheshwari.G
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper focuses on advanced sensing techniques for real-time environmental monitoring in smart cities. We discuss the integration of diverse sensors, including gas, particulate matter, and weather sensors, to provide comprehensive and accurate environmental data. Our proposed system employs data fusion algorithms to process the sensor information and enable informed decision-making for urban planning, public health, and pollution control.

Keywords: IoT, Sensors, Environmental Monitoring, Smart Cities, Data Fusion, Urban Planning.

128.Title: Intelligent Actuator Management for Fault-Tolerant Operation in Industrial IoT

[1]Mrs.V.Kavitha, [2]Mrs.G.Vidhya, [3]Ms Bhuvaneshwari.B, [4]Ms Dhivya.L
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: In industrial IoT settings, actuator failures can lead to severe consequences. This paper presents an intelligent actuator management approach that enhances fault tolerance and system reliability in industrial IoT environments. We propose a distributed actuator control system that employs predictive maintenance and dynamic actuator reconfiguration to minimize downtime and mitigate potential risks. Experimental results demonstrate the effectiveness of our approach in maintaining stable and resilient industrial processes.

Keywords: IoT, Actuators, Industrial IoT, Fault-Tolerance, Predictive Maintenance, System Reliability.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

129.Title: Enabling Real-Time Edge Analytics in IoT with Low-Power Sensors and Actuators

[1]Mr S.Premkumar, [2]Mrs.M.Suganya
[1]Asst. Prof., Dept. of ECE, Mountzion College of Engineering and Technology, Pudkukkotai.
[2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This research explores the integration of low-power sensors and actuators with real-time edge analytics capabilities to enable efficient and timely data processing in IoT applications. We present a resource-constrained edge computing architecture that leverages lightweight machine learning algorithms to perform analytics at the edge. The proposed approach reduces latency and communication overhead, making it suitable for applications like smart healthcare and precision agriculture.

Keywords: IoT, Sensors, Actuators, Edge Analytics, Low-Power Computing, Real-Time Processing.

130.Title: Computer-Aided Diagnosis of Breast Cancer using Mammogram Analysis and Machine Learning

[1]Mr. C.Palaniappan, [2]Ms. G. Vidya, [3]Ms. Maheswari K, [4]Ms Sasika K
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents a computer-aided diagnosis (CAD) system for the early detection of breast cancer using mammogram analysis and machine learning algorithms. The proposed CAD system integrates image preprocessing techniques, feature extraction methods, and classification algorithms to accurately identify suspicious regions indicative of breast malignancy. The system is trained on a large database of mammogram images with known ground truth labels, enabling it to learn discriminative features and patterns associated with breast cancer. Experimental evaluations demonstrate the high performance and potential clinical utility of the CAD system in assisting radiologists in breast cancer diagnosis.

Keywords: breast cancer, mammogram, computer-aided diagnosis, machine learning, feature extraction.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

131.Title: Deep Learning-Based Cell Classification in Histopathology Images for Cancer Diagnosis

[1]Mr.C.Palaniappan, [2]Mrs T.K.Mohanapriya, [3]Ms Ananthi P, [4]Ms Manisha S
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: This paper presents a deep learning-based approach for automated cell classification in histopathology images to assist in cancer diagnosis. The proposed method employs a deep convolutional neural network (CNN) architecture to learn discriminative features from cell-level image patches. The trained CNN model can accurately classify cells into different categories, such as normal, benign, and malignant, based on their visual appearance. Experimental results demonstrate the superior performance of the proposed method compared to traditional image analysis techniques, highlighting its potential as a valuable tool in cancer diagnostics.

Keywords: deep learning, cell classification, histopathology images, cancer diagnosis, convolutional neural network.

132.Title: Blockchain-Enabled Trust Management in Wireless Communication Networks

[1]Mr. C.Palaniappan, [2]Mrs. R. Yogeshwari, [3]Ms Megavadhana A, [4]Ms. Priyanga R
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Trust management plays a crucial role in wireless communication networks, especially in scenarios where multiple entities need to collaborate and exchange information. This paper presents a blockchain-enabled trust management mechanism for wireless communication networks. The mechanism leverages blockchain's transparency and immutability to establish a trustworthy environment for entity reputation evaluation and trust calculation. By storing trust-related data on the blockchain, the mechanism ensures tamper-proof and auditable trust records. Smart contracts are employed to automate trust-related operations and enable secure and transparent interactions among network entities. Experimental results demonstrate the effectiveness of the proposed mechanism in enhancing trustworthiness and mitigating malicious activities in wireless communication networks.

Keywords: Blockchain, Trust Management, Wireless Communication Networks, Reputation Evaluation, Smart Contracts

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

133.Title: Enhancing Immersion in Virtual Reality: A Multi-Sensory Feedback Framework

[1]Mrs. M.Suganya, [2]Mrs. V. Nithyapoorani, [3]Ms. Sountharya P, [4]Ms Atchaya R
[1, 2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper introduces a comprehensive framework for enhancing immersion in virtual reality (VR) experiences through multi-sensory feedback. The framework combines visual, auditory, haptic, and olfactory stimuli to create a more realistic and engaging virtual environment. By leveraging advancements in hardware and software technologies, the proposed framework enables synchronized and dynamic feedback based on the user's actions and the virtual context. The paper presents implementation details and discusses the potential applications of the framework in various domains, such as gaming, training simulations, and therapeutic interventions'

Keywords: Virtual reality, Immersion, Multi-sensory feedback, Virtual environments, User experience.

134.Title: Advanced Techniques for Electromagnetic Imaging in Non-Destructive Testing

[1]Ms Parameshwari.R, [2]T.K Mohanapriya
[1]Asst. Prof., Dept. of ECE, Chendhuran College of Engineering and Technology, Pudkukkotai
[2]Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper presents advanced techniques for electromagnetic imaging in non-destructive testing (NDT). NDT plays a crucial role in assessing the integrity and quality of materials and structures without causing damage. Electromagnetic imaging techniques, such as eddy current testing, microwave imaging, and magnetic resonance imaging, offer valuable insights into the internal structures and defects of materials. In this work, we discuss the principles and advancements in electromagnetic imaging techniques for NDT applications. We explore signal processing algorithms, imaging algorithms, and optimization techniques to enhance the imaging resolution and sensitivity. Moreover, we provide examples of successful applications of electromagnetic imaging in NDT, including flaw detection, material characterization, and structural health monitoring. The presented techniques contribute to the advancement of NDT methods, enabling more accurate and efficient evaluation of materials and structures.

Keywords: Electromagnetic imaging, Non-destructive testing, Eddy current testing, Microwave imaging, Magnetic resonance imaging, Signal processing algorithms, Imaging algorithms, Optimization techniques, Flaw detection, Material characterization, Structural health monitoring

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135.Title: IoT-Based Speed Control of AC Drives for Enhanced Energy Efficiency and Performance

[1]Mrs. A. Primrose, [2]Mrs. S. Susiladevi, [3]Ms.B.Aswini, [4]Ms.A.Dhanalakshmi
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.

Abstract: The Internet of Things (IoT) has revolutionized various industries, and its application in the field of electric drives is no exception. In this paper, we propose a novel approach to enhance the speed control of AC drives using IoT technology. The conventional speed control methods often lead to inefficiencies and suboptimal performance in industrial processes. By integrating IoT capabilities with AC drives, real-time data acquisition and analysis become possible, enabling dynamic and precise speed regulation. The proposed system leverages IoT-enabled sensors and actuators to monitor the operating conditions and control parameters, allowing for adaptive and intelligent control strategies. Through this IoT-based speed control, energy consumption can be optimized, leading to considerable cost savings and reduced environmental impact.

Keywords: Internet of Things (IoT), AC Drives, Speed Control, Energy Efficiency, Industrial Automation, Real-time Monitoring

136.Title: Power Quality Analyzer: A Comprehensive Assessment Tool for Electrical Systems

[1]Mr. A. Abdul Baseeth, [2]Mr. J. Sathyaraj, [3]Ms.B.Divyadharshini, [4]Ms.S.Manjula
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Power quality analyzers play a crucial role in ensuring the reliability and efficiency of electrical systems by monitoring and analyzing various parameters affecting the quality of electrical power. This paper presents an in-depth exploration of power quality analyzers, their functionalities, and their significance in identifying and rectifying power-related issues. The paper discusses the key features and capabilities of modern power quality analyzers, their application areas, and their importance in maintaining optimal performance in electrical networks.

Keywords: Power quality analyzer, Electrical systems, Voltage fluctuations, Harmonics, Transients, Flicker, Electrical network, Reliability, Efficiency, Sustainability.

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137.Title: Advances in Various Power Converters: A Comprehensive Review

[1]Mrs. S. Devaki, [2]Ms. R. Akilandeswari, [3]Ms.K.Praveena, [4]Ms.R.Praveena
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Power converters play a crucial role in modern power electronics, enabling efficient energy conversion and management across various applications. This review article aims to present a comprehensive overview of various power converters, their operating principles, and recent advancements. We explore the fundamental categories of power converters, including DC-DC converters, AC-DC converters, and AC-AC converters. Additionally, the paper delves into emerging converter topologies and control strategies, highlighting their potential for enhancing efficiency, reliability, and overall system performance. Through this review, readers will gain insights into the latest developments in power converter technology and its significance in addressing the challenges of energy conversion and utilization in contemporary power systems.
Keywords: Power Converters, DC-DC Converters, AC-DC Converters, AC-AC Converters, Energy Conversion

138.Title: Boost Converter in Wind Energy Generation: Enhancing Power Output and Efficiency

[1]Ms. N. Abirami and [2]Ms. K. Umamaheswari
[1]Asst. Prof., Dept. of EEE, Chendhuran College of Engineering and Technology, Pudkukkotai.
[2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The integration of renewable energy sources, such as wind power, has become vital for sustainable energy generation. Wind turbines are an effective means to harness wind energy, but their output is subject to fluctuations due to varying wind speeds. To address this challenge, boost converters have gained prominence as an essential component in wind energy systems. A boost converter is a DC-DC power converter that increases the voltage level while reducing the current, thus optimizing power transfer from the wind turbine to the grid or energy storage system.
Keywords: Wind energy, Boost converter, DC-DC power converter, Power output, Efficiency, Control strategies, Power electronics, Renewable energy, Sustainable energy, Wind turbine

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

139.Title: Solar PV Panel Calculation and Maintenance: A Comprehensive Guide for Efficiency and Longevity

[1]Mrs. PL.Kavitha, [2]Mrs. A. Primrose, [3]Ms.R.Priyadharsini, [4]Ms.M.Sangeetha
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: As the demand for renewable energy sources continues to rise, solar photovoltaic (PV) panels have emerged as a prominent solution for generating clean and sustainable electricity. However, to ensure optimal performance and extended lifespan, accurate calculation and diligent maintenance are crucial. This comprehensive guide explores the intricacies of solar PV panel calculation, covering factors such as panel efficiency, sizing, orientation, and shading analysis.
Keywords: Solar PV panel, calculation, maintenance, efficiency, sizing, orientation, shading analysis, optimization, renewable energy, sustainability.

140.Title: Smart Home System with GSM-based Embedded Communication: An Enhanced Approach to Home Automation

[1]Mrs. S. Susiladevi, [2]Mr. A. Abdul Baseeth, [3]Ms.C.Santhiya Rani, [4]Ms.A.Suganya
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: In recent years, the concept of home automation has gained significant attention due to its potential to enhance comfort, convenience, and energy efficiency. Smart home systems utilizing embedded technology have emerged as a promising solution to achieve seamless control and monitoring of household devices. This paper presents a novel approach to smart home automation by integrating a GSM-based embedded system. The proposed system enables homeowners to remotely access and control various appliances and devices within their homes using their smartphones or other mobile devices.
Keywords: Smart home system, GSM-based communication, Embedded system, Home automation, Remote control, Mobile devices, Energy efficiency

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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141.Title: Enhancing Sustainable Agriculture: Application of Photovoltaic Solar System with Power Electronics Controller for Irrigation Purpose

[1]Mr. T. Manikandan, [2]Mr. A. Abdul Baseeth
[1]Asst. Prof., Dept. of EEE, Shanmuganathan Engineering College, Pudkukkotai.
[2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The increasing demand for sustainable agricultural practices and the need for efficient irrigation solutions have led to the integration of renewable energy sources in irrigation systems. Photovoltaic (PV) solar systems have emerged as a promising solution, offering clean and abundant energy from the sun. However, the intermittent nature of solar energy necessitates an effective power electronics controller to optimize the energy flow and ensure reliable irrigation operation. This paper explores the application of a PV solar system in irrigation purposes, focusing on the critical role of power electronics controllers in enhancing system efficiency and performance. The study reviews various power electronics control techniques and highlights their impact on overall energy utilization and water management in agriculture.

Keywords: Photovoltaic solar system, irrigation, power electronics controller, sustainable agriculture, renewable energy

142.Title: Closed Loop Control Systems: Advancements, Applications, and Challenges

[1]Ms. R. Akilandeswari, [2]Mrs. P. Subha, [3]Ms.D. Suwathi, [4]Ms.R. Swarnalatha
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Closed loop control systems play a critical role in various engineering and technological domains. This paper provides an overview of closed loop control systems, focusing on their advancements, applications, and challenges. Closed loop control systems are designed to automatically regulate and maintain desired output values by continuously measuring feedback from the system and adjusting the input accordingly. The abstract presents an in-depth analysis of the key components that constitute a closed loop control system, including sensors, controllers, actuators, and feedback loops. Moreover, it highlights the wide-ranging applications of closed loop control systems in industries such as robotics, aerospace, automotive, manufacturing, and healthcare.

Keywords: Closed Loop Control Systems, Feedback Control, Control Theory, Sensors, Actuators, Control Algorithms, Automation

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

143.Title: Power System Frequency, Voltage, and Current Control: Challenges, Strategies, and Advancements

[1]Ms. M.Abirami and [2]Mrs. PL.Kavitha, [3]Ms.B.Vaishnavi, [4]Ms.S.Aishwarya
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Maintaining a stable and reliable power system is of utmost importance for the sustainable and efficient operation of modern societies. Power system frequency, voltage, and current control play pivotal roles in ensuring the continuous delivery of electricity at the desired levels and within acceptable limits. This paper presents a comprehensive review of the challenges faced in power system control, exploring the impact of fluctuating load demands, intermittent renewable energy sources, and various disturbances on system parameters.
Keywords: Power system, Frequency control, Voltage control, Current control, Load demand, Renewable energy sources.

144.Title: Grid Frequency Control in Distribution Side of Power Systems: Challenges and Solutions

[1]Mr. S. Muthukumar, [2]Mr. J. Sathyaraj
[1]Asst. Prof., Dept. of EEE, Mount Zion College of Engineering and Technology, Pudkukkotai.
[2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: With the increasing integration of distributed energy resources (DERs) in power systems, the distribution side of the grid is gaining significance for grid frequency control. The intermittent nature of renewable energy sources and the variability of loads in distribution networks pose challenges to maintaining grid frequency stability. This paper explores the issues related to grid frequency control in the distribution side of power systems and presents various solutions to address these challenges.
Keywords: Grid Frequency Control, Distribution Side, Power System, Distributed Energy Resources, DERs, Renewable Energy, Smart Grid, Energy Storage, Demand Response, Virtual Power Plants, Frequency Stability, Real-time Data Analytics.

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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145.Title: Protection Techniques for Control Drives in Mining Operations: A Comprehensive Review

[1]Mr. A. Abdul Baseeth, [2]Ms. R. Akilandeswari, [3]Ms.S.Aishwarya, [4]Ms.K.Malini
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Mining operations heavily rely on control drives to efficiently operate equipment and machinery in hazardous and demanding environments. However, these drives are susceptible to various risks such as electrical faults, mechanical failures, and harsh environmental conditions, which can lead to costly downtime and safety hazards. Therefore, implementing robust protection techniques is crucial to ensure the reliable and safe operation of control drives in mining operations. This paper presents a comprehensive review of various protection techniques used for control drives in mining operations, covering electrical, mechanical, and environmental protection methods.

Keywords: control drives, mining operations, protection techniques, electrical protection, mechanical protection, environmental protection, safety, reliability, productivity, sustainability.

146.Title: Comparative Analysis of Semiconductor Devices: Characteristics of SCR, BJT, UJT, MOSFET, and Diodes

[1]Ms. P. Subha, [2]Mrs. PL. Kavitha, [3]Ms.M.Abirami, [4]Ms.R.Ajitha
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Semiconductor devices play a fundamental role in modern electronic circuits, enabling various functionalities and applications across multiple industries. This paper presents a comprehensive comparative analysis of the characteristics of key semiconductor devices, namely Silicon-Controlled Rectifier (SCR), Bipolar Junction Transistor (BJT), Unijunction Transistor (UJT), Metal-Oxide-Semiconductor Field-Effect Transistor (MOSFET), and Diodes. The study delves into the distinct operating principles, electrical properties, and applications of each device, highlighting their advantages and limitations.

Keywords: Semiconductor Devices, Silicon-Controlled Rectifier, SCR, Bipolar Junction Transistor, BJT, Uni junction Transistor.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

147.Title: Commutatorless and Brushless Induction Motor: Operation and Applications

[1]Ms. M. Abirami, [2]Mrs. S. Susiladevi, [3]Ms.V.Girija, [4]Ms.A.Jothika
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Commutatorless and brushless induction motors have emerged as innovative and efficient alternatives to traditional brushed motors in various industrial applications. These motors employ advanced control techniques to eliminate the need for physical commutators and brushes, leading to reduced maintenance, increased reliability, and enhanced overall performance. This paper explores the principles of commutatorless and brushless induction motor operation, highlighting the advantages they offer over conventional counterparts.
Keywords: Commutatorless, Brushless, Induction Motor, Operation, Applications, Efficiency, Control Techniques, Electric Vehicles.

148.Title: Hub Motor Operation and Control: A Comprehensive Review of Electric Vehicle Propulsion Systems

[1]Mrs. L. Malathy and [2]Mrs. A. Primrose
[1]Asst. Prof., Dept. of ECE, Chendhuran College of Engineering and Technology, Pudkukkotai.
[2]Asso. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Electric vehicles (EVs) have gained immense popularity in recent years due to their eco-friendly and efficient nature. Among the various propulsion systems utilized in EVs, hub motors have emerged as a promising technology. Hub motors are electric motors integrated directly into the wheels, providing several advantages in terms of simplicity, compactness, and enhanced vehicle dynamics. This review paper aims to provide a comprehensive overview of hub motor operation and control techniques in electric vehicles. The study delves into the fundamental principles governing the operation of hub motors, elucidates different types of hub motors, and analyzes their advantages and limitations.
Keywords: Hub Motor, Electric Vehicle, Propulsion System, Wheel Motor, Motor Control, Regenerative Braking, Torque Vectoring, Anti-Lock Braking System, EV Technology, Electric Drivetrain.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

149.Title: Speed Control of IGBT and SCR-Based Three-Phase Induction Motor

[1]Mr. J. Sathyaraj, [2]Ms. R. Akilandeswari, [3]Ms.A.Kaunambigal, [4]Ms.K.Prasanna
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This research paper explores the speed control techniques applied to three-phase induction motors using Insulated Gate Bipolar Transistor (IGBT) and Silicon-Controlled Rectifier (SCR) devices. The speed control of induction motors is of paramount importance in various industrial applications, where precise control over motor speed is necessary to optimize performance and energy efficiency. The study investigates the use of IGBT and SCR-based control systems, their comparative advantages, and the implementation of various speed control strategies. The performance characteristics, advantages, and limitations of each control method are analyzed and compared through simulation and experimental studies.
Keywords: Speed control, IGBT, SCR, three-phase induction motor, industrial applications, energy efficiency.

150.Title: Parallel Operation of Transformers and Testing: Enhancing Efficiency and Reliability in Distributed Systems

[1]Ms. R. Akilandeswari, [2]Ms. M. Abirami, [3]Ms.G.Saranya, [4]Ms.V.Sneha
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The rapid growth of modern distributed systems, such as cloud computing and large-scale data processing, demands highly efficient and reliable computing architectures. Transformers, known for their exceptional performance in natural language processing tasks, have gained substantial attention in various applications. However, their parallel operation and testing in distributed environments remain critical challenges. This paper explores the parallelization of transformer-based models to leverage the capabilities of multi-core and distributed computing systems while ensuring their robustness through comprehensive testing methodologies.
Keywords: Parallel Operation, Transformers, Distributed Systems, Cloud Computing, Large-scale Data Processing, Efficiency, Reliability, Multi-core Computing, Parallel Processing, Testing, Model Integrity.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

151.Title: Advancements and Challenges in Battery Storage Systems for Energy Management and Sustainability

[1]Mrs. P. Subha, [2]Mr. J. Sathyaraj, [3]Ms.T.Subhasri, [4]Ms.R.Maheswari
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Battery storage systems have emerged as a critical technology in the pursuit of sustainable energy management and grid stability. As the demand for renewable energy sources continues to grow, effective energy storage solutions are essential to bridge the gap between intermittent energy production and constant energy consumption. This paper presents a comprehensive review of the latest advancements and challenges in battery storage systems, focusing on their role in enhancing grid resilience, promoting renewable energy integration, and mitigating environmental impacts.

Keywords: Battery Storage Systems, Energy Management, Renewable Energy Integration, Grid Stability, Sustainability.

152.Title: Analysis of Power System Load Frequency Control using Primary Control System

[1]Mrs. PL. Kavitha, [2]Ms. M. Abirami, [3]Ms.T.Subhasri, [4]Ms.R.Suriyakala
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The load frequency control (LFC) is a crucial aspect of power system operation, aimed at maintaining a balance between power generation and demand to ensure system stability and reliability. The primary control system, being the initial and rapid response mechanism, plays a pivotal role in regulating the power output of generators to address short-term fluctuations in demand. The research begins with a comprehensive review of existing primary control strategies and their theoretical underpinnings. A mathematical model of the power system with primary control is developed to simulate and evaluate different control schemes under various operating conditions. The impact of system parameters, such as inertia, control gains, and communication delays, is analyzed to assess their influence on the control system's overall performance.

Keywords: Load Frequency Control, Primary Control System, Power System Stability, Renewable Energy Integration, Frequency Deviations, Control Strategies, Power System Analysis.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

153.Title: Optimal Scheduling of RYB Line Changes for Efficient Transmission Line Operations

[1]Mr. A. Abdul Baseeth, [2]Mrs. S. Susiladevi, [3]Ms.R.Maheswari, [4]Ms.I.Princy Roselin
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Transmission lines play a crucial role in the reliable and efficient delivery of electricity from power generation sources to end consumers. Periodic maintenance and optimization of transmission lines are essential to ensure their long-term functionality and prevent potential disruptions. This study focuses on the necessary arrangement of changing the RYB (Red-Yellow-Blue) lines in regular intervals of transmission line operation to enhance overall system performance.

Keywords: Transmission line, RYB lines, scheduling, maintenance, optimization, reliability, power grid.

154. Title: Recent Trends in Artificial Intelligence for Electrical Fault Identification in Motor Operation

[1]Mr. R. Arunkumar and [2]Mr. J. Sathyaraj
[1]Asst. Prof., Dept. of EEE, V.S.B Engineering College, Karur.
[2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The utilization of artificial intelligence (AI) in the field of electrical fault identification has witnessed significant advancements in recent years, particularly in motor operation applications. The ability of AI-based systems to autonomously detect and diagnose faults in motors has proven to be crucial in ensuring the reliability, efficiency, and safety of various industrial processes. This paper presents an overview of the recent trends in using AI techniques, such as machine learning algorithms, deep learning models, and expert systems, for the accurate and real-time identification of electrical faults in motor operations.

Keywords: Artificial Intelligence, Electrical Fault Identification, Motor Operation, Machine Learning, Deep Learning, Expert Systems, Fault Detection, Industrial Processes.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

155.Title: Load Frequency Control Using Artificial Intelligence Techniques

[1]Mrs. S. Susiladevi, [2]Mrs. A. Primrose, [3]Ms.R.Ajitha, [4]Ms. T.Subhasri
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Load frequency control (LFC) is a vital aspect of power system operation, aimed at maintaining the balance between power generation and demand to ensure grid stability and reliability. The increasing complexity and uncertainty in modern power systems, driven by the integration of renewable energy sources and dynamic loads, present challenges for traditional control methods. As a result, the application of artificial intelligence (AI) techniques in load frequency control has gained significant attention in recent years. This paper presents a comprehensive review of various AI-based approaches, including neural networks, fuzzy logic, evolutionary algorithms, and reinforcement learning, applied to enhance the performance of load frequency control.

Keywords: Load Frequency Control, Artificial Intelligence, Neural Networks, Fuzzy Logic, Evolutionary Algorithms, Reinforcement Learning, Power System Stability.

156.Title: Adaptive Fuzzy Neuro-Inference System for Automatic Generation Control in Power Systems

[1]Mrs. S. Devaki, [2]Mrs. A. Primrose, [3]Ms.R.Suriyakala, [4]Ms.V.Girija
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: In modern power systems, Automatic Generation Control (AGC) plays a critical role in maintaining the balance between power generation and demand. Traditional AGC methods often encounter challenges in coping with dynamic and uncertain operating conditions. To address these issues, this paper proposes an innovative approach that combines Adaptive Fuzzy Logic and Neuro-Inference techniques to enhance the performance and robustness of AGC systems. The proposed Adaptive Fuzzy Neuro-Inference System (AFNIS) utilizes fuzzy logic to handle uncertainties and adaptively tunes its parameters using neuro-inference for improved controller response.

Keywords: Automatic Generation Control, Adaptive Fuzzy Logic, Neuro-Inference, Power Systems, Controller Tuning, Stability, Uncertainty Handling, Power Generation, Demand Management.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

157.Title: Real-Time Solar Environment Car with BLDC Motor: An Energy-Efficient Solution for Sustainable Transportation

[1]Mrs. P. Subha, [2]Ms. M. Abirami, [3]Ms.K. Prasanna, [4]Ms.I. Princy Roselin
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The increasing concerns about climate change and the depletion of fossil fuels have intensified the need for eco-friendly and sustainable transportation solutions. This paper presents the design and implementation of a real-time solar environment car equipped with a Brushless DC (BLDC) motor. Harnessing solar energy as its primary power source, the proposed vehicle aims to reduce greenhouse gas emissions and dependency on non-renewable energy resources. The integration of the BLDC motor enhances the car's efficiency and performance, providing a smoother and more reliable driving experience. The study explores the solar energy harvesting system, the control algorithms for real-time power management, and the overall performance of the solar environment car in different environmental conditions.

Keywords: Solar-Powered Car, Real-Time Environment, Brushless DC Motor, Sustainable Transportation, Solar Energy Harvesting, Power Management, Eco-Friendly Mobility.

158.Title: Differential Evolution Algorithm-Based Speed Control of DC Motor Using MATLAB

[1]Mr. J. Sathyaraj, [2]Mr. A. Abdul Baseeth, [3]Ms.A.Jothika, [4]Ms. G.Saranya
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper presents a novel approach for speed control of a DC motor using the Differential Evolution (DE) algorithm, implemented in MATLAB. DC motors are widely used in various industrial applications, where precise speed control is crucial for efficient operation. Conventional control methods may struggle to provide optimal performance due to the complexity of the motor's dynamics and the presence of uncertainties in the system. In this study, the DE algorithm is employed to optimize the PID controller parameters to achieve superior speed control performance. The proposed method starts with the mathematical modeling of the DC motor and the design of a conventional PID controller.

Keywords: DC motor, Speed control, Differential Evolution algorithm, MATLAB, PID controller, Optimization, Simulation, Industrial applications.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

159.Title: Enhancing Industrial Efficiency: An Automatic Lighting System for Improved Productivity and Energy Conservation

[1]Ms. M. Abirami, [2]Ms. S. Devaki, [3]Ms.V.Sneha, [4]Ms.R.Maheswari
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The industrial sector plays a crucial role in global economic growth, and enhancing productivity while reducing energy consumption has become a paramount objective. In pursuit of this goal, this study proposes an innovative Automatic Lighting System (ALS) designed to optimize lighting conditions within industrial facilities. The ALS harnesses advanced sensor technologies, intelligent controls, and data-driven algorithms to intelligently manage lighting levels, ensuring optimal illumination in various operational contexts. By adopting the ALS, industries can achieve a seamless integration of automation and energy conservation, leading to increased productivity, cost savings, and a reduced environmental footprint.

Keywords: Automatic Lighting System, Industrial Efficiency, Energy Conservation, Sensor Technologies, Intelligent Controls, Automation, Productivity, Cost Savings.

160.Title: Enhancing Power Quality Using Dynamic Voltage Restorer (DVR) and Distribution STATCOM (DSTATCOM)

[1]Mr. U. Thiruppathi and [2]Mr. A. Abdul Baseeth
[1]Asst. Prof., Dept. of EEE, Chendhuran College of Engineering and Technolgoy, Pudkukkotai.
[2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The demand for reliable and high-quality power supply has become increasingly crucial in modern electrical grids. The presence of various power quality issues, such as voltage sags, swells, and harmonics, poses significant challenges to the stability and efficiency of the power distribution system. This paper proposes the integration of two advanced voltage control devices, namely Dynamic Voltage Restorer (DVR) and Distribution STATCOM (DSTATCOM), to address these power quality concerns. The Dynamic Voltage Restorer is designed to rapidly mitigate voltage sags and swells, while the Distribution STATCOM functions as a dynamic reactive power compensator to improve voltage regulation and power factor correction.

Keywords: Dynamic Voltage Restorer, DVR, Distribution STATCOM, DSTATCOM, power quality, voltage sags, voltage swells, voltage regulation, power factor correction, electrical grids, voltage control devices.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

161.Title: Characteristics of DC Cumulative and Differential Compound Motors

Mr. J. Sathyaraj, Ms. R. Akilandeswari, Ms.A.Dhanalakshmi, Ms.R.Priyadharsini
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: DC compound motors are widely used in various industrial applications due to their versatility and controllability. This paper explores the characteristics of two specific types of DC compound motors: cumulative compound motors and differential compound motors. The study aims to provide a comprehensive understanding of their operating principles, performance characteristics, and applications. Through theoretical analysis and practical examples, this research sheds light on the advantages and limitations of motor types, enabling engineers and practitioners to make informed decisions regarding their implementation in different electrical systems. The investigation highlights the significance of selecting the appropriate motor type based on specific requirements and load conditions for optimal performance and energy efficiency.
Keywords: DC compound motor, cumulative compound, differential compound, motor characteristics, performance analysis, industrial applications.

162.Title: Applications of Artificial Intelligence Techniques in Electrical Power Systems

[1]Mrs. P. Subha, [2]Ms.S.Devaki, [3]Ms. B.Vaishnavi, [4]Ms.S.Aishwarya
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The integration of Artificial Intelligence (AI) techniques in electrical power systems has garnered significant attention due to its potential to revolutionize the way we generate, transmit, and distribute electricity. AI technologies offer advanced analytics, decision-making capabilities, and automation, enabling power system operators to enhance grid efficiency, reliability, and resilience. This paper explores various applications of AI in electrical power systems, including load forecasting, fault detection and diagnosis, energy management, demand response, and optimal power flow. It also discusses the challenges and opportunities associated with the widespread adoption of AI in this critical domain. The presented research aims to highlight the immense benefits of AI integration in power systems and stimulate further exploration in this rapidly evolving field.
Keywords: Artificial Intelligence, Electrical Power Systems, Load Forecasting, Fault Detection, Energy Management, Demand Response, Optimal Power Flow, Grid Efficiency, Grid Reliability, Grid Resilience.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

163.Title: Ward Leonard Method of Speed Control: Advantages and Implementation

[1]Ms. M. Abirami, [2]Ms. R. Akilandeswari, [3]Ms.R.Praveena, [4]Ms.S.Manjula
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3,4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: The Ward Leonard method of speed control is a widely recognized and efficient technique utilized in various applications to regulate the speed of electric motors. This control system operates on the principle of using a separate motor-generator set to control the speed of the main motor. The main motor's speed is altered by adjusting the generator's field voltage, which, in turn, affects the armature voltage supplied to the main motor. This paper delves into the operational aspects of the Ward Leonard method, discussing its key components, working principle, and advantages.

Keywords: Ward Leonard method, speed control, motor-generator set, field voltage, armature voltage, advantages, speed regulation, torque control, stability, precise control.

164.Title: Flicker Meter: An Essential Tool for Power Quality Analysis and Mitigation of Problems

[1]Ms. R. Akilandeswari, [2]Mrs. PL. Kavitha, [3]Ms.K.Malini, [4]Ms.D.Suwathi
[1]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Power quality issues have become a significant concern in modern power systems, affecting the efficiency, reliability, and performance of electrical devices. Among these issues, voltage fluctuations resulting in flicker have drawn increasing attention due to their adverse effects on sensitive equipment and human comfort. To effectively identify, analyze, and mitigate flicker-related problems, the use of a flicker meter has become indispensable. This paper provides an overview of flicker meters, their working principles, and their significance in diagnosing and resolving power quality problems caused by voltage fluctuations.

Keywords: Flicker meter, Power quality, Voltage fluctuations, Power system analysis, Flicker measurement, Voltage flicker, Power system stability, Power quality standards.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

165.Title: A Comparative Analysis of Commutator-Less Motors and Commutator Motors

[1]Mr.L. Rajamohan, [2]Mr. A. Abdul Baseeth, [3]Ms.R.Swarnalatha, [4]Ms.A.Dhanalakshmi
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This paper presents a comprehensive comparison between commutator-less motors and commutator motors, which are two prominent types of electric motors widely used in various applications. Commutator-less motors, such as brushless DC motors and induction motors, have gained significant popularity due to their superior efficiency, reduced maintenance requirements, and enhanced reliability. On the other hand, commutator motors, including brushed DC motors and universal motors, have been employed for decades and offer unique advantages in specific applications. This study aims to highlight the key differences, advantages, and limitations of both motor types, enabling a better understanding of their respective suitability in diverse industrial, automotive, and consumer electronic systems.

Keywords: commutator-less motor, commutator motor, brushless DC motor, induction motor, brushed DC motor, universal motor, electric motor comparison, motor efficiency, motor torque, speed control, motor maintenance, motor applications.

166.Title: Effective Maintenance Strategies for Industrial Electrical Motors: A Comprehensive Review

[1]Ms.S. Devaki, [2]Mrs. S. Susiladevi, [3]Ms.B.Aswini, [4]Ms. K. Praveena
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: Electric motors play a vital role in the functioning of various industries, powering critical machinery and equipment. Proper maintenance of these electrical motors is essential to ensure their optimal performance, prolong their lifespan, and minimize downtime. This review aims to explore the diverse maintenance techniques and practices employed in industry to upkeep electrical motors during operation. The study delves into preventive, predictive, and corrective maintenance methods, highlighting their significance in enhancing motor reliability and efficiency. Additionally, the abstract assesses the use of advanced technologies, such as condition monitoring and smart sensors, in revolutionizing maintenance approaches.

Keywords: electrical motors, maintenance, industry, preventive maintenance, predictive maintenance, corrective maintenance, condition monitoring, smart sensors, reliability, efficiency, downtime reduction, industrial machinery.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

167.Title: System Errors in Instruments: Analysis and Remedies

[1]Mrs. S. Susiladevi, [2]Mrs. A. Primrose, [3]Ms. M.Sangeetha, [4]Ms. B.Divyadharshini
[1, 2]Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai.
[3, 4]UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudkukkotai

Abstract: This research paper explores the critical issue of system errors in instruments and their potential impact on various industries. Modern systems heavily rely on instruments for accurate measurements, data collection, and process control. However, the presence of errors within these instruments can lead to costly consequences, compromising safety, productivity, and quality. This study aims to identify the sources of system errors in instruments, investigate their root causes, and propose effective remedies to mitigate and prevent such errors. By understanding the underlying factors contributing to instrument errors, industries can implement proactive measures and ensure the reliability and accuracy of their systems.

Keywords: system errors, instruments, measurement accuracy, data collection, process control, sources, root causes, remedies, reliability, safety, productivity, quality.

168.Title: A Literature Review on Speed Control and Direction of Rotation using Android based Controller

[1]Mr. J. Sathyaraj, [2]Ms. R. Akilandeswari, [3]Ms. V. Sneha
[1, 2]Asst. Prof. /EEE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3]UG Student, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The technology is a process that never ends and to improve the quality of any product these technologies are required. The Android-is the most popular mobile platform, which is very useful in creating much real time application which is useful in our day to day life. Under this article, the blueprint and execution of a cheap, robust as well as resilient and secure Bluetooth based DC motor speed and direction control has been presented. The speed control was implemented using Bluetooth technology to provide communication access from smart phone. On the other hand we have PIC platform that we can use to quickly prototype electronic systems. IR sensor is used to measure the RPM of DC motor. By using PWM signal we can control the DC motor. Android mobile act as a transmitter and the received by Bluetooth receiver interfaced to PIC which send data to the Bluetooth module and which in-turn run the DC motor and also monitor the speed of DC motor on LCD module.

Keywords: Speed Control, Android Controller, DC Motor, LCD Module.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

169.Title: Intelligent Control Strategies for Power Electronics in Real-time Embedded Systems

[1]Mr. Manikandan, [2]Mr. Abdulbaseeth
[1]Asst. Prof. /EEE, Shanmuganathan Engineering College, Pudukkottai.
[2]Asst. Prof. /EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Real-time embedded systems require precise and adaptive control strategies to handle dynamic load variations and varying environmental conditions. This paper presents an in-depth study of intelligent control strategies applied to power electronics in real-time embedded systems. It explores the utilization of advanced control techniques, such as fuzzy logic, neural networks, and model predictive control, to achieve optimal performance and efficiency. The paper analyzes the implementation of these control strategies in power converters, voltage regulators, and motor drives within embedded systems. Special attention is given to the benefits of closed-loop control systems, providing robustness and stability.

Keywords: Power Electronics, Real-time Embedded Systems, Intelligent Control, Fuzzy Logic, Neural Networks, Model Predictive Control, Power Converters, Voltage Regulators, Motor Drives, Closed-loop Control, Sensor Technologies, Machine Learning Algorithms, Smarter Systems.

170.Title: Analysis and Study of Speed Control of BLDC Motor Drives

[1]Ms. K. A. Muthulakshmi, [2]Ms. M. Abirami, [3]Ms. T. Subhasri, [4]Ms. R. Suriyakala
[1, 2]Asst. Prof./EEE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Student, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Brushless DC Motor (BLDC) is one of the best electrical drives that have increasing popularity, due to their high efficiency, reliability, good dynamic response and very low maintenance. Due to the increasing demand for compact & reliable motors and the evolution of low cost power semiconductor switches and permanent magnet (PM) materials, brushless DC motors become popular in every application from home appliances to aerospace industry. The conventional techniques for controlling the stator phase current in a brushless DC drive are practically effective in low speed and cannot reduce the commutation torque ripple in high speed range. This paper presents the PI controller for speed control of BLDC motor. The output of the PI controllers is summed and is given as the input to the current controller.

Keywords: BLDC Motor, Speed Control Permanent Magnet Materials, PI Controller, Mathematical Modeling.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

171.Title: Investigation and Design of Permanent Magnet Synchronous Motor

[1]Ms. R. Ragadharsini, [2]Mrs. A. Primrose, [3]Ms. A. Jothika and [4]Ms. A. Karunambigai
[1, 2]Asst. Prof. /EEE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Student, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: — Permanent magnet synchronous motors (PMSMs) have been widely used in many industrial applications. Due to their compactness and high torque density. The PMSMs are particularly used in high-performance drive systems such as the submarine propulsion. The permanent magnet synchronous motor eliminates the use of slip rings for field excitation, resulting in low maintenance and low losses in the rotor. The PMSMs have the high efficiency and are appropriate for high performance drive systems such as CNC machines, robotic and automatic production systems in the industry. Generally, the design and construction a PMSM must consider both of the stator and rotor structures in order to obtain a high performance motor. However this paper focuses only on the design of the permanent magnet rotor and uses the stator structure from an existing induction motor without changing the windings.
Keywords: Permanent magnet motors, CNC machines, Synchronous Motor.

172.Title: Design and Implementation of a High-Performance Power Electronics Module for Embedded Systems

[1]Mrs. Umamaheswari and [2]Ms. S.Devaki
[1]Asst.Prof. / EEE, Chendhuran College of Engineering and Technology, Pudukkottai.
[2]Asst. Prof. / EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents the design and implementation of a high-performance power electronics module specifically tailored for integration within embedded systems. The module is designed to efficiently manage power distribution, conversion, and control within limited form factors while ensuring optimal performance and reliability. The paper begins with an overview of the key requirements and challenges associated with power electronics in embedded systems. It then delves into the selection and design of power semiconductor devices, considering factors such as switching frequency, voltage ratings, and thermal considerations. Additionally, the control and protection circuitry for the power module are discussed, emphasizing the use of advanced control algorithms to enhance efficiency and robustness.
Keywords: Power Electronics, Embedded Systems, Power Distribution, Power Conversion, High-Performance Module, Power Semiconductor Devices, Control Algorithms, Efficiency, Robustness, PCB Layout, Thermal Management.

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173.Title: Addressing Insider Threats: Behavioral Analytics for Early Detection and Prevention

[1]Mr.R.Vijay, [2]Ms.G.Sugapriya, [3]Ms. Abirami .S, [4]Ms. Abirami .R
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Insider threats pose a significant risk to organizations' cybersecurity. This study investigates the implementation of behavioral analytics as a proactive measure to identify and mitigate insider threats. By analyzing user behavior patterns and detecting anomalies, organizations can detect malicious activities in real-time, enabling early intervention and preventing potential data breaches.

Keywords: Insider threats, Cybersecurity, Behavioral analytics, Proactive measure, User behavior patterns, Anomalies, Real-time detection, Early intervention, Data breaches, Malicious activities, Insider risk, Cybersecurity measures

174.Title: Securing the Internet of Things: Challenges and Countermeasures

[1]Ms. Subha P, [2]Mrs.Nushrath Fathima A [3]Ms. Aishwarya .S, [4]Ms. Akalya .R
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The rapid growth of the Internet of Things (IoT) has introduced numerous security challenges. This paper examines the vulnerabilities inherent in IoT systems and proposes a range of countermeasures to address these issues. It highlights the importance of secure device authentication, data encryption, and robust access control mechanisms to protect IoT ecosystems from unauthorized access and malicious attacks.

Keywords: Internet of Things (IoT), Security challenges, Vulnerabilities, Countermeasures, Device authentication, Data encryption, Access control mechanisms, IoT ecosystems, Unauthorized access, Malicious attacks, IoT security, IoT devices, Data protection, Cybersecurity, Secure communication

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

175.Title: Securing Mobile Devices by Balancing Usability and Security

[1]Ms. NushrathFathima A, [2]Sugapriya.G, [3]Ms. Auxilia .A, [4]Ms. Gunabala .N
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Mobile devices have become integral to our daily lives, but their security remains a concern. This study investigates the trade-off between usability and security in mobile devices and presents strategies to strike a balance. It discusses secure authentication methods, data encryption techniques, and mobile device management solutions to safeguard sensitive information and protect against mobile threats.

Keywords: Mobile devices, Usability, Security, Trade-off, Mobile security, Authentication methods, Data encryption, Mobile device management, Sensitive information, Mobile threats, Mobile data protection, Usability vs. security, Secure authentication.

176.Title: Cybersecurity in a Hyperconnected World and the Role of Blockchain Technology

[1]Mr. Swaminathan K, [2]Ms.Bhuvaneswari G, [3]Ms. Kaleeswari .S, [4]Ms. Kokila .R
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The hyperconnected nature of today's digital world requires innovative solutions to ensure cybersecurity. This research explores the potential of blockchain technology in enhancing cybersecurity. It investigates the application of blockchain in secure identity management, distributed threat intelligence sharing, and decentralized consensus mechanisms to establish trust and resilience in interconnected systems. This research aims to address these cybersecurity concerns by exploring the potential of blockchain technology.

Keywords: Hyperconnected world, Cybersecurity, Blockchain technology, Secure identity management, Distributed threat intelligence sharing, Decentralized consensus mechanisms, Trust Resilience, Interconnected systems, Digital security, Blockchain applications, Cyber threat management, Blockchain in cybersecurity.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

177.Title: A Holistic Approach to Mitigate Attacks with Ransomware Defense Strategies

[1]Ms.Bhuvaneswari G, [2]Ms.Jayapratha S, [3]Ms. Nanthini .N, [4]Ms. Priya .S
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Ransomware attacks have become increasingly prevalent and devastating. This paper proposes a holistic defense strategy to mitigate the impact of ransomware attacks. It includes a combination of proactive measures such as employee training, regular backups, network segmentation, and incident response planning. Additionally, it examines emerging technologies like deception techniques and machine learning-based ransomware detection to strengthen defenses against this evolving threat.

Keywords: Ransomware attacks, Cybersecurity, Defense strategy, Mitigation, Holistic approach, Proactive measures, Employee training, Regular backups, Network segmentation, Incident response planning, Emerging technologies, Deception techniques, Machine learning, Ransomware detection

178.Title: Anomaly Detection in Financial Transactions

[1]Ms. Sugapriya G, [2]Mrs.Suganya C, [3]Ms. Priyadharshini .M, [4]Ms. Reshma Barveen .S
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research addresses the detection of anomalous activities in financial transactions using data mining techniques. The study explores various algorithms, including clustering, classification, and time series analysis, to identify unusual patterns indicative of fraudulent behavior. By analyzing transactional data, such as transaction amounts, frequencies, and user behavior, the research aims to enhance the accuracy and efficiency of anomaly detection systems in financial institutions, ultimately minimizing financial losses and protecting customers' assets.

Keywords: Anomalous activities, Financial transactions, Data mining techniques, Algorithms, Clustering, Classification, Time series analysis, Fraudulent behavior, Transactional data, Transaction amounts, Transaction frequencies, User behavior, Anomaly detection systems

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

179.Title: Customer Lifetime Value Prediction in E-commerce

[1]Ms. Jayapratha S, [2]Ms.Vaitheeswari, [3]Ms. Santhana Lakshmi .C, [4]Ms. Saroja .M
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic focuses on predicting customer lifetime value (CLV) in e-commerce using data mining methodologies. The study examines historical customer data, such as purchase history, demographics, and browsing behavior, to build predictive models. By accurately estimating CLV, businesses can optimize customer acquisition strategies, personalize marketing campaigns, and improve customer retention efforts. The research evaluates different techniques, including regression models, clustering, and decision trees, to enhance the precision of CLV predictions and facilitate data-driven decision-making in the e-commerce domain.

Keywords: Customer lifetime value (CLV), E-commerce, Data mining methodologies, Predictive models, Historical customer data, Purchase history, Demographics, Browsing behavior, Customer acquisition strategies, Personalized marketing campaigns,Customer retention
Regression models, Clustering, Decision trees

180.Title: Social Media Influence Analysis: Unveiling Key Opinion Leaders through Data Mining

[1]Ms. Sasikala G, [2]Ms.Gayathri S, [3]Ms. Sineha .C, [4]Ms. Sowmiya .S
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research delves into social media influence analysis and the identification of key opinion leaders (KOLs) using data mining techniques. The study explores methods to analyze user-generated content, social network connections, and engagement metrics to determine influential individuals in online communities. By uncovering KOLs, businesses can leverage their influence for marketing campaigns, brand advocacy, and reputation management. The research assesses various algorithms, such as centrality measures, sentiment analysis, and network analysis, to identify and rank influential users, enabling effective targeting and engagement strategies.

Keywords: Social media, Influence analysis, Key opinion leaders (KOLs), Data mining techniques, User-generated content, Social network connections, Engagement metrics, Online communities, Influential individuals, Marketing campaigns, Brand advocacy, Reputation management, Algorithms, Centrality measures, Sentiment analysi

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

181.Title: Predictive Maintenance in Manufacturing Equipment Failure Prediction

[1]Ms. Yogam. V, [2]Ms.Sasikala G, [3]Ms. Dharani V, [4]Ms. Lakshmi Priya G
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic focuses on predictive maintenance in manufacturing using data mining methodologies. The research aims to predict equipment failures by analyzing sensor data, historical maintenance records, and environmental factors. By employing machine learning algorithms, such as regression, time series analysis, and ensemble methods, the study aims to develop accurate models for proactive maintenance planning. This research provides insights into optimizing maintenance schedules, reducing downtime, and minimizing costs associated with unplanned equipment failures.

Keywords: Predictive maintenance, Manufacturing, Data mining methodologies, Sensor data, Historical maintenance records, Environmental factors, Machine learning algorithms, Regression, Time series analysis, Ensemble methods,

182.Title: Fraud Detection in Healthcare Claims

[1]Ms. Shobana V.N, [2]Ms.Subha P, [3]Ms. Aarthi .P, [4]Ms. Aarthika .S
[1,2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3,4]UG Students, Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research addresses fraud detection in healthcare claims using data mining techniques. The study analyzes medical and billing records, investigating patterns and anomalies that may indicate fraudulent activities. By applying classification algorithms, anomaly detection, and network analysis, the research aims to build robust models for automated fraud detection in healthcare. The findings contribute to minimizing healthcare fraud, reducing financial losses, and ensuring the integrity of healthcare systems.

Keywords: Fraud detection, Healthcare claims, Data mining techniques, Medical records, Billing records, Patterns, Anomalies, Fraudulent activities, Classification algorithms, Anomaly detection, Network analysis, Robust models, Automated fraud detection, Healthcare fraud Financial losses

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

183.Title: Personalized Recommendation Systems using Leveraging Data Mining Algorithms

[1]Ms. Suganya C, [2]Mrs.Sugapriya G, [3]Ms. Kamalavalli .K, [4]Ms. Mahalakshmi .S
[1, 2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic explores personalized recommendation systems and their reliance on data mining algorithms. The research investigates collaborative filtering, content-based filtering, and hybrid methods to provide tailored recommendations to users. By analyzing user preferences, item attributes, and historical behavior, the study aims to develop accurate and effective recommendation models. The research assesses the performance and scalability of different algorithms, considering factors such as sparsity, diversity, and cold-start problems, to enhance the accuracy and relevance of personalized recommendations across various domains.

Keywords: Personalized recommendation systems, Data mining algorithms, Collaborative filtering, Content-based filtering, Hybrid methods, Tailored recommendations, User preferences Item attributes, Historical behavior, Recommendation models, Performance assessment, Scalability, Sparsity, Diversity, Cold-start problems, User engagement

184.Title: Sentiment Analysis in Online Reviews for Opinion Mining

[1]Ms. Vaitheeswari K, [2]Mr.Swaminathan K, [3]Ms. Renuga .K, [4]Ms. Sangavi D
[1, 2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on sentiment analysis in online reviews using data mining techniques. The study aims to automatically extract sentiments expressed in user-generated content to understand public opinion, product perception, and sentiment trends. By employing natural language processing, text classification, and sentiment lexicons, the research aims to develop accurate sentiment analysis models. The findings contribute to better understanding customer sentiment, enabling businesses to make informed decisions regarding product development, marketing strategies, and brand reputation management.

Keywords: Sentiment analysis, Online reviews, Data mining techniques, User-generated content, Public opinion, Product perception, Sentiment trends, Natural language processing, Text classification, Sentiment lexicons, Sentiment analysis models, Customer sentiment, Informed decisions, Product development, Marketing strategies, Brand reputation management

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

185.Title: Customer Churn Prediction in Telecom Industry

[1]Mr.Vijay R, [2]Mrs.Nushrath Fathima A, [3]Ms. Sathya D, [4]Ms. Shenaz Sherin.Z
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic investigates customer churn prediction in the telecom industry using data mining methodologies. The research explores predictive modeling techniques, such as decision trees, support vector machines, and ensemble methods, to identify factors that contribute to customer attrition. By analyzing customer demographics, usage patterns, and service interactions, the study aims to build accurate churn prediction models. The findings enable telecom companies to proactively retain customers by developing targeted retention strategies, improving customer satisfaction, and reducing customer churn rates.

Keywords: Customer churn prediction, Telecom industry, Data mining methodologies, Predictive modeling techniques, Decision trees, Support vector machines, Ensemble methods, Customer attrition, Customer demographics, Usage patterns, Service interactions, Churn prediction models, Proactive retention, Targeted retention strategies

186.Title: Network Intrusion Detection with Leveraging Data Mining for Cybersecurity

[1]Ms.Subha P, [2]Ms.Jayapratha S, [3]Ms. Atchaya.A, [4]Ms. Durgadevi.D
[1,2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3,4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research addresses network intrusion detection using data mining techniques to identify and prevent cyber threats. The study explores anomaly detection, machine learning algorithms, and behavioral analysis to detect and classify malicious activities in network traffic. By analyzing network logs, packet headers, and behavioral patterns, the research aims to build robust intrusion detection systems. The findings contribute to enhancing network security, mitigating potential cyber attacks, and ensuring the integrity of critical systems and data.

Keywords: Network intrusion detection, Data mining techniques, Cyber threats, Anomaly detection, Machine learning algorithms, Behavioral analysis, Malicious activities, Network traffic, Network logs, Packet headers, Behavioral patterns, Intrusion detection systems, Network security, Cyber attacks, Critical systems, Data integrity, Cybersecurity

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

187.Title: Exploratory Data Analysis for Big Data: Visualization and Data Mining Techniques

[1]Ms. NushrathFathima A, [2]Mr.Vijay R, [3]Ms. Gayathri.K, [4]Ms. Iswarya.M
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic focuses on exploratory data analysis (EDA) for big data using visualization and data mining techniques. The research explores methods to analyze and visualize large-scale datasets to gain insights, identify patterns, and uncover hidden relationships. By leveraging techniques such as clustering, dimensionality reduction, and association rule mining, the study aims to extract valuable knowledge from big data. The findings contribute to better decision-making, improved data understanding, and identification of actionable insights in various domains with massive datasets.

Keywords: Exploratory data analysis (EDA), Big data, Visualization, Data mining techniques, Large-scale datasets, Insights, Patterns, Hidden relationships, Clustering, Dimensionality , reduction, Association rule mining, Knowledge extraction, Decision-making, Data understanding Actionable insights, Data exploration, Data visualization

188.Title: Dynamic Resource Allocation in Cloud Computing: Optimization and Performance Analysis

[1]Mr.Swaminathan K, [2]Mrs.Shobana V.N,[3]Ms. Iswarya.P, [4]Ms. Karthika.K
[1,2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3,4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research investigates dynamic resource allocation techniques in cloud computing environments. The study explores optimization algorithms and performance analysis to efficiently allocate computing resources based on workload demands. By dynamically provisioning resources, such as virtual machines and storage, the research aims to improve resource utilization, minimize response times, and reduce operational costs. The findings contribute to enhancing the scalability, flexibility, and overall performance of cloud computing systems.

Keywords: Dynamic resource allocation, Cloud computing, Optimization algorithms, Performance analysis, Computing resources, Workload demands, Virtual machines, Storage provisioning, Resource utilization, Response times, Operational costs, Scalability, Flexibility Cloud computing systems, Resource management, Cloud performance.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

189.Title: Data Security and Privacy in Cloud Computing with its Challenges and Solutions

[1]Ms. Bhuvaneswari G,[3] Mrs.Shobana V.N, [2]Ms. Lakshmi.G, [3]Ms. Nur Asyikin.H
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic focuses on data security and privacy concerns in cloud computing. The research examines the challenges posed by shared infrastructure, data migration, and unauthorized access. It explores encryption techniques, access control mechanisms, and secure data management practices to protect sensitive information stored in the cloud. The study evaluates different security models and proposes solutions to mitigate risks and ensure data confidentiality, integrity, and availability in cloud environments.
Keywords: Data security, Privacy concerns, Cloud computing, Shared infrastructure, Data migration, Unauthorized access, Encryption techniques, Access control mechanisms, Secure data management, Sensitive information, Cloud security, Security models, Risk mitigation, Data confidentiality, Data integrity, Data availability

190.Title: Serverless Computing with its Architecture, Performance, and Scalability Analysis

[1]Ms. Sugapriya G, [2] Ms.Bhuvaneswari G, [3]Ms. Rilvana.V, [4]Ms. Sangeetha.K
[1,2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3,4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research delves into serverless computing, exploring its architecture, performance, and scalability. The study investigates the benefits and challenges of serverless computing models, such as Function as a Service (FaaS). It analyzes factors such as response time, resource consumption, and auto-scaling capabilities to assess the performance and scalability of serverless platforms. The findings contribute to understanding the trade-offs and potential applications of serverless computing in various domains.
Keywords: Serverless computing, Architecture, Performance, Scalability, Function as a Service(FaaS), Benefits, Challenges, Response time, Resource consumption, Auto-scaling capabilities, Serverless platforms, Trade-offs, Application domains, Cloud computing, Cloud services, Distributed computing, Event-driven architecture, Serverless deployment, Serverless applications, Cost efficiency

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

191.Title: Energy-Efficient Cloud Computing for Green Data Centers and Sustainable Practices

[1]Ms. Jayapratha S, [2]Mrs.Shobana V.N, [3]Ms. Subha.S, [4]Ms. Vaishnavi.M
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic focuses on energy-efficient cloud computing and sustainable practices in data centers. The research examines energy consumption patterns, cooling techniques, and renewable energy integration to reduce carbon footprint and operational costs. It explores optimization algorithms and workload consolidation strategies to improve energy efficiency without compromising performance. The findings contribute to promoting environmentally friendly practices in cloud computing, fostering sustainability, and minimizing the environmental impact of data center operations.

Keywords: Energy-efficient cloud computing, Sustainable practices, Data centers, Energy consumption patterns, Cooling techniques, Renewable energy integration,Carbon footprint, Operational costs, Optimization algorithms, Workload consolidation, Energy efficiency, Performance optimization, Environmentally friendly practices

192.Title: Privacy-Preserving Collaborative Machine Learning

[1]Ms. Sasikala G, [2]Ms.Bhuvaneswari G, [3]Ms. Swathi.P, [4]Ms. Yazhinie.M
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research investigates federated learning, a privacy-preserving approach to collaborative machine learning in cloud computing. The study explores algorithms and protocols that enable distributed model training without sharing sensitive data. It addresses privacy concerns by analyzing techniques such as secure aggregation, differential privacy, and encrypted computation. The findings contribute to enhancing data privacy, enabling large-scale collaborative learning, and facilitating efficient knowledge transfer in cloud-based federated learning systems.

Keywords: Federated learning, Privacy-preserving, Collaborative machine learning, Cloud computing, Distributed model training, Sensitive data, Privacy concerns, Secure aggregation, Differential privacy, Encrypted computation, Data privacy, Distributed learning, Large-scale collaborative learning, Knowledge transfer, Cloud-based federated learning, Privacy-enhancing techniques

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

193.Title: Integration, Management, and Optimization for Hybrid Cloud Architecture

[1]Ms. Gayathri S, [2]Ms.Bhuvaneswari G, [3]Ms. Mariya Rushanthini.R, [4]Ms. Abinaya R
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic explores hybrid cloud architecture, focusing on the integration, management, and optimization of public and private cloud environments. The research examines strategies for workload placement, data synchronization, and resource orchestration across hybrid cloud deployments. It evaluates hybrid cloud management platforms and optimization techniques to improve performance, cost-effectiveness, and scalability. The findings contribute to facilitating seamless integration, efficient resource utilization, and enhanced agility in hybrid cloud environments.

Keywords: Hybrid Cloud Architecture, Integration Strategies, Public Cloud, Private Cloud, Workload Placement, Data Synchronization, Resource Orchestration, Hybrid Cloud, Deployments, Hybrid Cloud Management Platforms, Optimization Techniques, Performance Improvement, Agility in Hybrid Cloud, Multi-cloud Environments, Resource Utilization

194.Title: Fault Tolerance and High Availability in Cloud Computing: Resilient Infrastructure and Data Replication

[1]Ms. Shobana V N, [2]Mr.Vijay R, [3]Ms. Fazila Begam.S, [4]Ms. Mahalakshmi.R
[1, 2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research addresses fault tolerance and high availability in cloud computing. The study investigates fault detection, recovery mechanisms, and data replication strategies to ensure continuous service availability. It explores fault-tolerant architectures, load balancing algorithms, and disaster recovery techniques to minimize downtime and improve system reliability. The findings contribute to building resilient cloud infrastructures, reducing service interruptions, and enhancing user experience in highly available cloud environments.

Keywords: Fault tolerance, High availability, Cloud computing, Fault detection, Recovery mechanisms, Data replication strategies, Continuous service availability, Fault-tolerant architectures, Load balancing algorithms, Disaster recovery techniques, Downtime
System reliability, Resilient cloud infrastructures, Service interruptions

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PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

195.Title: Server Consolidation and Virtualization in Cloud Data Centers

[1]Ms. Suganya C, [2]Ms.Sasikala G, [3]Ms. Sowmiya.N, [4]Ms. Pirainuthalselvi.M
[1, 2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic focuses on server consolidation and virtualization techniques in cloud data centers. The research examines algorithms for workload placement, resource allocation, and virtual machine migration to optimize resource utilization and energy efficiency. It evaluates performance metrics, such as response time, throughput, and power consumption, to assess the effectiveness of server consolidation strategies. The findings contribute to maximizing resource efficiency, reducing infrastructure costs, and improving overall system performance in cloud data centers.

Keywords: Server consolidation, Virtualization techniques, Cloud data centers, Algorithms, Workload placement, Resource allocation, Virtual machine migration, Resource utilization Energy efficiency, Performance metrics, Response time, Throughput, Power consumption Server consolidation strategies, Resource efficiency, Infrastructure costs

196.Title: Data Governance and Compliance in Cloud Computing with Regulatory Frameworks and Best Practices

[1]Ms. Vaitheeswari K, [2]Ms.Sasikala G, [3]Ms. Archana T, [4]Ms. Madhu Bashini B
[1, 2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research investigates data governance and compliance in cloud computing, addressing the challenges of regulatory frameworks and best practices. The study examines data protection regulations, such as GDPR and HIPAA, and explores compliance mechanisms, data classification, and audit trails to ensure data integrity and legal compliance. It evaluates data governance frameworks and proposes best practices for data management, access control, and data lifecycle management in cloud environments. The findings contribute to establishing robust data governance strategies, protecting user privacy, and complying with regulatory requirements in the cloud.

Keywords: Data governance, Compliance, Cloud computing, Regulatory frameworks, Best practices, Data protection regulations, GDPR (General Data Protection Regulation), HIPAA (Health Insurance Portability and Accountability Act), Compliance mechanisms, Data classification, Audit trails, Data integrity, Legal compliance, Data governance frameworks, Data management, Access control, Data lifecycle management, Cloud environments, User privacy, Robust data governance strategiesss

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PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

197.Title: Edge Computing Architecture, Performance, and Latency Analysis in Cloud Networks

[1]Mr. Vijay R, [2]Ms.Vaitheeswari K, [3]Ms. Sathya T, [4]Ms. Meera C
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic explores edge computing in cloud networks, focusing on its architecture, performance, and latency analysis. The research investigates the deployment of computational resources at the network edge to reduce latency and enhance user experience. It evaluates the trade-offs between computation offloading, data transmission, and edge resource utilization to optimize performance. The findings contribute to understanding the benefits and challenges of edge computing, facilitating real-time processing, and improving latency-sensitive applications in cloud networks.

Keywords: Edge computing, Cloud networks. Architecture, Performance analysis, Latency analysis, Computational resources, Network edge, Latency reduction, User experience, Computation offloading, Data transmission.

198.Title: Secure Data Storage and Privacy Preservation in Cloud Computing

[1]Ms. Subha P, [2]Mr.Swaminathan K, [3]Ms. Keerthana M, [4]Ms. Jenciya C
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on secure data storage and privacy preservation in cloud computing. The study examines encryption techniques, access control mechanisms, and data anonymization methods to protect sensitive information stored in the cloud. By ensuring data confidentiality, integrity, and availability, the research aims to address privacy concerns and mitigate the risk of unauthorized access or data breaches. The findings contribute to enhancing trust in cloud computing environments, enabling organizations and individuals to leverage the benefits of cloud services while maintaining data security and privacy.

Keywords: Secure data storage, Privacy preservation, Cloud computing, Encryption techniques, Access control mechanisms, Data anonymization, Data confidentiality, Data integrity, Data availability, Privacy concerns, Unauthorized access, Data breaches, Data security, Trust in cloud computing, Cloud services, Data privacy, Data protection

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PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

199.Title: Dynamic Resource Provisioning for Cost Optimization in Cloud Computing

[1]Ms. NushrathFathima A, [2]Mr.Vijay R, [3]Ms. Indhumathi S, [4]Ms. Karthika S
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic investigates dynamic resource provisioning techniques for cost optimization in cloud computing. The research explores auto-scaling mechanisms, workload prediction models, and resource allocation algorithms to efficiently allocate and manage computing resources based on demand fluctuations. By dynamically adjusting resource allocation, the study aims to minimize infrastructure costs while ensuring optimal performance and user satisfaction. The findings contribute to cost-effective cloud resource management strategies, enabling organizations to optimize resource utilization and allocate their cloud budget efficiently.

Keywords: Dynamic resource provisioning,Cost optimization, Cloud computing, Auto-scaling mechanisms, Workload prediction models, Resource allocation algorithms, Computing resources Demand fluctuations, Resource management, Infrastructure costs, Performance optimization, User satisfaction, Cost-effective strategies, Cloud resource management, Resource utilization, Cloud budget allocation, Cloud workload management

200.Title: Privacy-Preserving Machine Learning using Federated Learning

[1]Mr. Swaminathan K, [2]Ms.Subha P, [3]Ms. Mullaiyarasi R, [4]Ms. Kayathri K
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research delves into federated learning in edge computing, focusing on privacy-preserving machine learning techniques. The study explores decentralized learning models, secure aggregation protocols, and differential privacy methods to train machine learning models without sharing raw data. By preserving data privacy at the edge, the research aims to leverage distributed computing resources while protecting sensitive user information. The findings contribute to advancing the field of privacy-preserving machine learning in edge computing, enabling collaborative learning without compromising data privacy and security.

Keywords: Federated learning, Edge computing, Privacy-preserving, Machine learning, Decentralized learning, Secure aggregation protocols, Differential privacy, Training machine learning models, Raw data sharing, Data privacy, Distributed computing resources, Sensitive user information, Collaborative learning, Data security, Privacy-preserving machine learning, Distributed machine learning

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PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

201.Title: Fault Tolerance and High Availability in Cloud Computing

[1]Ms. Bhuvaneswari G, [2]Ms.Subha P, [3]Ms. Akila S, [4]Ms. Bavani V
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic addresses fault tolerance and high availability in cloud computing. The research investigates fault tolerance mechanisms, redundancy strategies, and fault recovery approaches to ensure continuous service availability and data integrity in the event of hardware or software failures. By mitigating single points of failure and enabling rapid fault recovery, the study aims to enhance the reliability and resilience of cloud-based services. The findings contribute to building robust cloud infrastructures, minimizing service disruptions, and providing a seamless user experience.

Keywords: Fault tolerance, High availability, Cloud computing, Fault tolerance mechanisms, Redundancy strategies, Fault recovery approaches, Continuous service availability, Data integrity Hardware failures, Software failures, Single points of failure, Rapid fault recovery, Reliability Resilience, Cloud-based services, Robust cloud infrastructures

202.Title: Energy-Efficient Resource Management in Green Cloud Computing

[1]Ms. Sugapriya G, [2]Mrs.NushrathFathima A, [3]Ms. Priyatharshini V, [4]Ms. Rizwana Parveen Z
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on energy-efficient resource management in green cloud computing. The study explores energy-aware scheduling algorithms, virtual machine consolidation techniques, and power management strategies to minimize energy consumption and carbon footprint in cloud data centers. By optimizing resource allocation and workload consolidation, the research aims to reduce energy costs while maintaining quality of service. The findings contribute to environmentally sustainable cloud computing practices, enabling organizations to embrace green initiatives and contribute to a more energy-efficient future.

Keywords: Energy-efficient resource management, Green cloud computing, Energy-aware scheduling algorithms, Virtual machine consolidation, Power management strategies, Energy consumption, Carbon footprint, Cloud data centers, Resource allocation, Workload consolidation, Energy costs, Quality of service, Environmentally sustainable practices, Green initiatives, Energy-efficient future, Cloud computing efficiency, Green computing

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PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

203.Title: Serverless Computing Optimization

[1]Ms. Jayapratha S, [2]Mr.Swaminathan K, [3]Ms. Nisha Devi G, [4]Ms. Parameshwari S
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic investigates serverless computing, including its architecture, deployment models, and performance optimization techniques. The research explores function-as-a-service (FaaS) platforms, auto-scaling mechanisms, and resource allocation strategies to enhance the efficiency and scalability of serverless applications. By leveraging the pay-as-you-go model and minimizing infrastructure management, the study aims to streamline application development and deployment while optimizing resource utilization. The findings contribute to the understanding and adoption of serverless computing paradigms, enabling organizations to build scalable and cost-effective cloud-based applications.

Keywords: Serverless computing, Architecture, Deployment models, Performance optimization Function-as-a-service (FaaS), Auto-scaling mechanisms, Resource allocation strategies, Efficiency, Scalability, Serverless applications, Pay-as-you-go model.

204.Title: Data Governance and Compliance in Cloud Computing

[1]Ms. Sasikala G, [2]Ms.Jayapratha S, [3]Ms. Priyadarshini S, [4]Ms. Priyadharshini C
[1, 2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research addresses data governance and compliance challenges in cloud computing. The study explores data classification frameworks, access control policies, and audit mechanisms to ensure compliance with data protection regulations and industry standards. By implementing robust data governance practices, the research aims to enhance data privacy, integrity, and compliance in cloud environments. The findings contribute to establishing a secure and compliant cloud computing ecosystem, enabling organizations to meet regulatory requirements and build trust with their customers.

Keywords: Data governance, Compliance challenges, Cloud computing, Data classification frameworks, Access control policies, Audit mechanisms, Data protection regulations, Industry standards, Data privacy, Data integrity, Cloud environments, Robust data governance practices, Regulatory requirements, Secure cloud computing, Data compliance, Data security

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PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

205. Title: Hybrid Cloud Integration: Challenges and Strategies

[1]Ms. Yogam. V,[2] Mrs.Suganya C ,[3]Ms. Vahini D, [4]Ms. Vinotha P
[1,2]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[3,4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This topic investigates the challenges and strategies involved in integrating hybrid cloud environments. The research explores hybrid cloud architecture models, data synchronization mechanisms, and workload migration techniques to seamlessly integrate private and public cloud resources. By addressing interoperability, data consistency, and security concerns, the study aims to enable efficient data exchange and workload portability across hybrid cloud deployments. The findings contribute to the development of effective hybrid cloud integration strategies, facilitating the adoption of hybrid cloud models and maximizing the benefits of cloud computing.

Keywords: Hybrid cloud environments, Integration challenges, Hybrid cloud architecture, Data synchronization, Workload migration, Private cloud, Public cloud, Interoperability, Data consistency, Security concerns, Data exchange, Workload portability, Hybrid cloud deployments, Cloud computing, Hybrid cloud integration, Hybrid cloud models, Cloud resource integration

206.Title: Data Mining and Analytics in Cloud Computing

[1]Ms. Shobana V, [2] Mrs.Suganya C, [3]Ms. Sangeeths S, [4]Ms. Navina N
[1,2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3,4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on data mining and analytics in cloud computing. The study explores scalable data processing frameworks, distributed data mining algorithms, and big data analytics techniques to extract valuable insights from large-scale datasets. By leveraging the computational power and storage capabilities of the cloud, the research aims to enable efficient data analysis, pattern recognition, and predictive modeling. The findings contribute to advancing data mining and analytics capabilities in cloud environments, empowering organizations to make data-driven decisions and gain a competitive edge.

Keywords: Data mining, Analytics, Cloud computing, Scalable data processing, Distributed data mining, Big data analytics, Large-scale datasets, Computational power, Storage capabilities, Efficient data analysis, Pattern recognition, Predictive modeling,Cloud-based data mining, Cloud-based analytics, Data insights, Data-driven decisions, Cloud-based data processing, Advanced analytics techniques

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PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

207.Title: Deep Learning for Image Classification using Convolutional Neural Networks and Beyond

[1]Ms. Vaitheeswari K, [2]Ms.Gayathri S, [3]Ms. Sangeeths S, [4]Ms. Navina N
[1, 2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on deep learning techniques for image classification. The study explores convolutional neural networks (CNNs) and advanced architectures, such as residual networks and attention mechanisms, to achieve state-of-the-art performance in image recognition tasks. The research investigates different training strategies, regularization techniques, and data augmentation approaches to improve the generalization and robustness of deep learning models. The findings contribute to advancing the field of image classification, enabling applications in areas such as autonomous driving, medical imaging, and visual recognition systems.

Keywords: Deep learning, Image classification, Convolutional neural networks (CNNs), Advanced architectures, Residual networks, Attention mechanisms, State-of-the-art performance, Image recognition tasks, Training strategies, Regularization techniques, Data augmentation, Generalization, Robustness, Deep learning models, Autonomous driving, Medical imaging

208.Title: Transfer Learning with Leveraging Knowledge across Domains and Tasks

[1]Ms. Suganya C, [2]Ms.Gayathri S, [3]Ms. Maryselcia S, [4]Ms. Rupassri M
[1, 2]Asst. Prof., Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.
[3, 4]UG Students, Dept. of IT, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research delves into transfer learning, which aims to leverage knowledge learned from one domain or task to improve learning performance in another. The study investigates techniques such as fine-tuning, domain adaptation, and pre-training on large-scale datasets (e.g., ImageNet) to transfer knowledge across different domains or tasks. The research evaluates the effectiveness of transfer learning in various application areas, including natural language processing, computer vision, and healthcare. The findings contribute to developing efficient and effective transfer learning approaches, enabling the utilization of existing knowledge to improve learning outcomes in diverse domains.

Keywords: Transfer learning, Knowledge transfer, Domain adaptation, Fine-tuning, Pre-training, Large-scale datasets, ImageNet, Learning performance, Natural language processing, Computer vision, Healthcare, Application areas, Learning outcomes, Knowledge utilization, Effective transfer learning, Efficient transfer learning, Multidomain learning

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209.Title: Time Series Forecasting: Techniques for Predictive Analysis

[1]Ms.Alagusundaram, [2]Mr.Shanmugam R, [3]Mr.S.Subhashini
[1]Asst. Prof., Dept. of CSE, Mahath Amma Institute of Engineering and Technology, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Mahath Amma Institute of Engineering and Technology, Pudukkottai

Abstract: This research addresses time series forecasting, which involves predicting future values based on historical data patterns. The study explores classical time series models (e.g., ARIMA) and modern techniques, such as recurrent neural networks (RNNs) and long short-term memory (LSTM) networks. The research investigates feature engineering, model selection, and evaluation metrics for accurate and reliable predictions. The findings contribute to improving forecasting capabilities in various domains, including finance, energy, and sales, enabling organizations to make informed decisions and plan for the future based on time-dependent data patterns.

Keywords: Time series forecasting, Predicting future values, Historical data patterns, Classical time series models, ARIMA, Modern techniques, Recurrent neural networks (RNNs), Long short-term memory (LSTM) networks, Feature engineering, Model selection, Evaluation metrics, Accurate predictions, Reliable predictions, Forecasting capabilities, Finance forecasting, Energy forecasting, Sales forecasting

210.Title: Clustering and Anomaly Detection using Unsupervised Learning

[1]Mr.Antony Cruz, [2]Mr.Kathiresan K, [3]Mr.S.Palaniyappan
[1]Asst. Prof., Dept. of CSE, Mahath Amma Institute of Engineering and Technology, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Mahath Amma Institute of Engineering and Technology, Pudukkottai

Abstract: This topic focuses on unsupervised learning, which encompasses clustering and anomaly detection techniques. The research explores algorithms such as k-means, hierarchical clustering, and density-based methods for grouping data into meaningful clusters. Additionally, the study investigates anomaly detection algorithms, including statistical approaches, outlier analysis, and one-class support vector machines. The research evaluates the performance and scalability of unsupervised learning algorithms in different domains, contributing to effective data exploration, pattern discovery, and outlier identification in large-scale datasets.

Keywords: Unsupervised learning, Clustering techniques, Anomaly detection, K-means, Hierarchical clustering, Density-based methods, Statistical approaches, Outlier analysis, One-, class support vector machines, Performance evaluation, Scalability, Data exploration, Pattern discovery, Outlier identification, Large-scale datasets, Data clustering, Data grouping

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211. Title : Deep Reinforcement Learning: Training Intelligent Agents with Rewards

[1]Mr.Vinoth, [2]Ms.P.Sindhu
[1]Asst. Prof., Dept. of CSE, Chendhuran College of Engineering and Technology, Pudukkottai.
[2]UG Students, Dept. of CSE, Chendhuran College of Engineering and Technology, Pudukkottai

Abstract: This paper explores deep reinforcement learning, a powerful technique for training intelligent agents through rewards and penalties. The research explains the concept of Markov Decision Processes (MDPs) and how deep neural networks can be used to approximate the Q-function in Q-learning. It discusses applications of deep reinforcement learning in game playing, robotics, and autonomous systems.

Keywords: Deep Learning, Reinforcement Learning, Markov Decision Processes, MDPs, Q-learning, Q-function, Game Playing, Robotics, Autonomous Systems.

212. Title: Deep Learning for Medical Imaging: Advancements in Disease Diagnosis and Prognosis

[1]Ms.Divya Sopna.[2]Ms.A.Priyavathani, Ms.R.Priyadhaarshini
[1]Asst. Prof., Dept. of CSE, Mountzion College of Engineering and Technology, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Mountzion College of Engineering and Technology, Pudukkottai

Abstract: This research explores the use of deep learning in medical imaging for disease diagnosis and prognosis. The paper discusses convolutional neural networks (CNNs) and their applications in analyzing medical images, such as X-rays, MRI, and CT scans. It also examines the challenges and opportunities in deploying deep learning models for personalized medicine and precision healthcare.

Keywords: Deep Learning, Medical Imaging, Convolutional Neural Networks, CNNs, Disease Diagnosis, Prognosis, X-rays, MRI, CT Scans, Personalized Medicine, Precision Healthcare.

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Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

213. Title: Security and Privacy in Pervasive Computing: Addressing Challenges in Ubiquitous Connectivity

[1]Ms.Sakthivelraja R, [2]Ms. Rajeswari K, [3]Ms. Priyadharshini F
[1]Asst. Prof., Dept. of CSE, Oxford Engineering College, Trichy.
[2, 3]UG Students, Dept. of CSE, Oxford Engineering College, Trichy

Abstract: This study addresses the security and privacy challenges in pervasive computing due to the ubiquitous connectivity of smart devices. The paper discusses authentication mechanisms, secure communication protocols, and data privacy techniques in the context of pervasive computing. It explores the importance of protecting sensitive information in smart environments to ensure user trust and adoption.

Keywords: Pervasive Computing, Security, Privacy, Authentication, Communication Protocols, Data Privacy, Ubiquitous Connectivity, Smart Environments, User Trust.

214. Title: Pervasive Computing in Education: Transforming Learning Environments

[1]Ms.Saravana Priya G, [2]Ms. Hema A, [3]Ms. Iswarya P
[1]Asst. Prof., Dept. of CSE, Viswam Institute of Engineering & Technology Trichy.
[2, 3]UG Students, Dept. of CSE, Viswam Institute of Engineering & Technology, Trichy

Abstract: This study investigates the transformative impact of pervasive computing in education, enhancing learning environments through interactive and personalized experiences. The paper explores the use of mobile learning, augmented reality (AR), and smart classrooms in promoting collaborative and immersive learning. It discusses the challenges and opportunities of integrating pervasive computing in educational settings.

Keywords: Pervasive Computing, Education, Mobile Learning, Augmented Reality, AR, Smart Classrooms, Interactive Learning, Personalized Learning, Collaborative Learning.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
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215. Title: Pervasive Computing and Big Data: Leveraging Data Insights for Smart Decision-Making

[1]Ms.Priya K, [2]Ms. Shanthi T
[1,,2]Asst. Prof, Dept. of CSE, Shivani Engineering College, Trichy

Abstract: This research explores the synergy between pervasive computing and big data, leveraging data insights for smart decision-making in various domains. The paper discusses data collection, storage, and analysis in pervasive computing systems. It explores how big data analytics enable intelligent applications and informed decision-making in smart environments.
Keywords: Pervasive Computing, Big Data, Data Insights, Data Collection, Data Storage, Data Analysis, Big Data Analytics, Smart Decision-Making, Intelligent Applications.

216. Title : Web Scraping Techniques: Extracting Data from Websites for Analysis

[1]Ms.Karthiga Devi, [2]Ms.P.Sindhu
[1]Asst. Prof., Dept. of CSE, Chendhuran College of Engineering and Technology, Pudukkottai.
[2]UG Students, Dept. of CSE, Chendhuran College of Engineering and Technology, Pudukkottai

Abstract: This paper explores web scraping techniques used to extract data from websites for analysis. The research covers various methods, such as using Python libraries like BeautifulSoup and Scrapy, to crawl and scrape web pages. It discusses the legal and ethical considerations of web scraping and its applications in data mining, market research, and competitive analysis.
Keywords: Web Scraping, Data Extraction, Python, BeautifulSoup, Scrapy, Web Crawling, Data Mining, Market Research, Competitive Analysis.

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217. Title: Efficient Implementation of Red-Black Trees for Fast Data Retrieval

[1]Mr.Rakesh S, [2]Ms. Jenifar A
[1, 2]UG Students, Dept. of CSE, Shivani Engineering College, Trichy

Abstract: This research paper presents an optimized approach to implementing red-black trees, a balanced binary search tree, with the goal of achieving faster data retrieval. The proposed technique focuses on reducing the overhead associated with tree rotations and maintaining balance while ensuring efficient insertion and deletion operations. The experimental results demonstrate significant performance improvements compared to traditional red-black tree implementations.
Keywords: Red-black trees, balanced binary search trees, data structures, efficient implementation, data retrieval

218. Title: Enhancing Graph Algorithms with Advanced Data Structures

[1]Mr.Pradeep H, [2]Mr Saravanan E
[1,2] UG Students, Dept. of CSE, Pavendar Bharathidasan College of Engineering and Technology, Trichy

Abstract: This paper explores the integration of advanced data structures to improve the efficiency of graph algorithms. It investigates the application of data structures such as Fibonacci heaps, adjacency lists, and succinct data structures for tasks such as shortest path finding, minimum spanning tree construction, and graph traversal. The experimental evaluation demonstrates the advantages of using these advanced data structures in terms of time and space complexity.
Keywords: Graph algorithms, advanced data structures, Fibonacci heaps, adjacency lists, succinct data structures, shortest path, minimum spanning tree, graph traversal

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

219. Title: Smart Greenhouses: Enhancing Controlled Environment Agriculture with IoT

[1]Ms.Subha P, [2]Ms.Mala S, [3]Ms. Mamtha G
[1]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[2,3]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This study focuses on the use of IoT in smart greenhouses for controlled environment agriculture. The paper explores how IoT sensors and actuators can regulate temperature, humidity, and lighting conditions to create an optimal growth environment for plants. It discusses the benefits of smart greenhouses in extending the growing season, conserving energy, and increasing crop yield while minimizing resource consumption.

Keywords: Smart Greenhouses, Controlled Environment Agriculture, IoT, Internet of Things, Sensors, Actuators, Temperature Regulation, Humidity Regulation, Lighting Conditions, Optimal Growth Environment, Growing Season, Energy Conservation, Crop Yield.

220. Title: IoT and Precision Pest Control in Agriculture: Minimizing Pesticide Usage

[1]Ms.Bhuvaneswari G, [2]Ms.Niranjanadevi C, [3]Ms. Kowsalya S
[1]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research examines the role of IoT in precision pest control to minimize pesticide usage in agriculture. The paper explores how IoT devices can monitor pest populations, weather conditions, and crop health to implement targeted and timely pest control measures. It discusses the benefits of precision pest control in reducing environmental impact, preserving beneficial insects, and ensuring sustainable pest management practices.

Keywords: IoT, Internet of Things, Precision Pest Control, Pesticide Usage, Agriculture, IoT Devices, Pest Populations, Weather Conditions, Crop Health, Targeted Pest Control, Environmental Impact, Beneficial Insects, Sustainable Pest Management.

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Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

221. Title: IoT-Enabled Agricultural Drones: Transforming Farming through Aerial Data Collection

[1]Ms.Sugapriya G, [2]Ms.Roopina R, [3]Ms. Ranjani K
[1]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This study focuses on IoT-enabled agricultural drones and their transformative role in farming through aerial data collection. The paper explores how drones equipped with IoT sensors and cameras can capture high-resolution images and collect real-time data on crop health, soil conditions, and irrigation needs. It discusses the benefits of drone technology in optimizing field monitoring, crop assessment, and farm decision-making processes.

Keywords: IoT, Internet of Things, Agricultural Drones, Aerial Data Collection, IoT Sensors, Cameras, High-Resolution Images, Real-Time Data, Crop Health, Soil Conditions, Irrigation Needs, Field Monitoring, Farm Decision-Making

222. Title: Performance Evaluation of 5G Wireless Networks: A Comparative Study

[1]Ms.Jayapratha S, [2]Ms.Kayathri K, [3]Ms. Karthika S
[1]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: The deployment of fifth-generation (5G) wireless networks has revolutionized mobile communications. This comparative study evaluates the performance of different 5G network architectures, including enhanced mobile broadband (eMBB), ultra-reliable low-latency communications (URLLC), and massive machine-type communications (mMTC). The research analyzes key performance metrics, such as throughput, latency, reliability, and scalability, providing insights into the strengths and limitations of 5G technology.

Keywords: wireless networks, 5G, performance evaluation, eMBB, URLLC, mMTC

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Dr S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

223. Title: Biometric Authentication Systems: Balancing Convenience and Privacy

[1]Ms.Mounica S, [2]Ms.Fahmidha B, [3]Ms. Gulnas Fathima S
[1]Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.
[2, 3]UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper examines biometric authentication systems and their role in balancing user convenience with privacy concerns. The research discusses various biometric modalities, such as fingerprint, face recognition, and iris scanning, and explores the security and privacy implications of storing and processing biometric data. It also discusses advancements in biometric encryption and secure template matching techniques.

Keywords: Biometric Authentication, Convenience, Privacy, Fingerprint, Face Recognition, Iris Scanning, Biometric Data, Security, Secure Template Matching.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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