First International Conference on Global Research Perspectives in Engineering & Technology for Holistic Restructuring

"New Vistas in Technological Advancements for Globalization"

IC 2021 GRPETHR

24-25 September 2021

Organized By

P.T.Lee Chengalvaraya Naicker Polytechnic College
(Govt. Aided Institution - Estd. 1886)
Indian Society for Technical & Education
(ISTE) – Student Chapter
Vepery, Chennai, Tamil Nadu, India

In Association With

Centre for Research & Training (CRT)
National Foundation for Entrepreneurship Development (NFED)
Coimbatore, Tamil Nadu, India

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Conference Proceedings

Acknowledgements

We sincerely thank the Chief Patron, Hon'ble Justice P. Kalaiyarasan, High Court of Madras (Retd.), Chairman, P.T.Lee Chengalvaraya Naicker Trust, Vepery, Chennai, Tamil Nadu for his unflagging support to this international conference.

We express our thanks to Patrons and Hon'ble Trustees of P.T.Lee Chengalvaraya Naicker Trust, Vepery, Chennai, Tamil Nadu Mr. L. Arul, Dr. C. Veni, Dr. K. Ramalingam, IES (Retd.), Mr. G. Sundaramurthi, IAS (Retd.), Dr. N. Veerappan, Adv. Mr. D. Gubendragunabalan, Adv. Mr. M. Rajendran and Mr. P. Sundaram, Secretary for their constant encouragement to conduct this international conference.

We extend our warm thanks to Prof. Dr. D. Viswanathan, Honorary Educational Advisor of P.T.Lee Chengalvaraya Naicker Polytechnic College, Vepery, Chennai and Former Vice Chancellor, Anna University, Chennai for his constant encouragement to this international conference.

We owe our sincere thanks to the Presidium Members, Advisory Committee Members, Deans, Technical Heads and Associates of National Foundation for Entrepreneurship Development (NFED) Trust, Coimbatore, Tamil Nadu for their continuous co-operation for successfully conducting and hosting this international conference.

We heartily thank the sponsors Ultramarine & Pigments Ltd., Ambattur, Chennai and MIL, Ambattur, Chennai, Tamil Nadu for their financial support for successfully conducting this international conference.

We extend our humble gratitude to the Chief Guest, Dr. Pratapsinh Kakaso Desai, President, Indian Society for Technical Education (ISTE) Head Quarters, New Delhi and Guest of Honour, Dr. A. Sankara Subramanian, Principal, GRG Polytechnic College, Coimbatore, Tamil Nadu & Chairman, Indian Society for Technical Education (ISTE), Tamil Nadu Section for delivering their special address in this international conference.

We wholeheartedly thank the distinguished International Keynote Speakers, Dr. Baby Sam Saamuel, General Manager, InterTech LLC & Vice-Chairman, Knowledge Oman, Sultanate of Oman; Ms. Theviga Rani Wemel, Co-Founder & Chief Operating Officer, LTT Global Communications Sdn Bhd, Selangor DE, Malaysia; Mr. Owaiz Khan, Co-Founder & Chief Product Officer, Talouns Pte Ltd., Singapore and Dr. Mithileysh Sathiyanarayanan, Founder & Chief Executive Officer, MIT Square Services Pvt. Ltd., London, United Kingdom for their exuberant keynote address in this international conference.

We heartily thank the distinguished National Keynote Speakers, Prof. Dr. R. Manimegalai, Head, Department of Computer Science & Engineering, PSG Institute of Technology & Applied Science, Coimbatore, Tamil Nadu; Dr. Naveen B P, Associate Professor & Head, Department of Civil Engineering, School of Engineering & Technology, Amity University (Gurgaon Campus), Gurugram, Haryana; Dr. B. Surekha, Professor, Department of Electronics & Communication Engineering, K.S. Institute of Technology, Bengaluru, Karnataka and Dr. R. Deepalakshmi, Assistant Professor, Department of Computer Applications, Tamil Nadu Dr. Ambedkar Law University, Chennai, Tamil Nadu for their insightful keynote address in this international conference.

We extend our hearty thanks to the revered Valedictory Keynote Speakers, Dr. Amit Kumar Srivastava, Director, All India Council for Technical Education (AICTE), New Delhi; Dr. Vandana Gupta, Professor & Head, Parul Institute of Design (PID) & Parul Institute of Fine Arts (PIFA), Parul University, Vadodara, Gujarat; Dr. S. Veenadhari, Associate Professor, Department of Computer Science & Engineering, Rabindranath Tagore University, Bhopal, Madhya Pradesh and Dr. V. Sunitha, Associate Professor, Department of Geology, Yogi Vemana University, Kadapa, Andhra Pradesh for their thought provoking expression in this international conference.

Our hearty thanks to all the distinguished session chairs Dr. K. Kalaiselvi, Professor, Department of Computer Applications, School of Computing Sciences, Vels Institute of Science, Technology & Advanced Studies (Deemed University), Chennai, Tamil Nadu; Dr. Pooja More, Programme Coordinator, Skill Development Centre, Savitribai Phule Pune University, Pune, Maharashtra; Dr. R. Parameswari, Professor, Department of Computer Science, School of Computing Sciences, Vels Institute of Science, Technology & Advanced Studies (Deemed University), Chennai, Tamil Nadu; Dr. A. Uma Maheswari, Associate Professor & Head, Department of Mathematics, Quaid-E-Millath Government College for Women (Autonomous), Chennai, Tamil Nadu; Dr. A. N. Jayanthi, Associate Professor, Department of Electronics & Communication Engineering, Sri Ramakrishna Institute of Technology, Coimbatore, Tamil Nadu; Asso. Prof. S. Sivakumar, Head, Department of Automobile Engineering, Kumaraguru College of Technology, Coimbatore, Tamil Nadu; Ms. D. Susmitha, Founder & Managing Director, Suntowa Technologies Pvt. Ltd., Chennai, Tamil Nadu and Dr. S. Kavitha, Professor, Department of Civil Engineering, Jain University, Bengaluru, Karnataka for their impeccable session moderation and evaluation of the paper presentations in this international conference.

We thank the continuous efforts and unstinting cooperation rendered by Conference Director, Mrs. Ramya Kandavel, Member Secretary, Centre for Research & Training (CRT) & Director, NFED Trust, Coimbatore, Tamil Nadu and Conference Convener, Dr. S. Aruna, ISTE Student Chapter Coordinator & Lecturer, Department of Civil Engineeering, P.T. Lee Chengalvaraya Naicker Polytechnic College, Vepery, Chennai for successfully completing this conference.

Our profound thanks to all the Advisory Committee Members and National Facilitators for their diligent support to this international conference.

Our sincere thanks to all the Authors and Research Scholars from various academia for submitting their invaluable research contributions to this international conference.

We thank the media and friends for their constant encouragement and support for publicizing this international conference across their networks and groups.

Sd/-

Dr. M. Venkatraman
Conference Chair & Principal, PTLeeCNPTC
&
KVJ. Prof. Dr. R. Ganesan
Conference Co-Chair & Chairman, NFED

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Preamble

The globalization in the current scenario is based on the timely transformation of scientific potential, engineering innovation and technology transfer. This has necessitated the phenomenal and radical researches across sciences, engineering and technology disciplines at large. Moreover, the development and growth scenario of the world is possible through integration of sciences, engineering and technology. This is in turn has triggered the research prospects across these aforementioned disciplines so as to address the emerging trends and challenges in accordance with timely transformation and holistic restructuring. The reason being, only the new vistas in scientific perspectives and technological advancements will fill-in these gaps and address the necessities time and again. Furthermore, encouraging the research and development on these avenues among young scientists and technologists is very much needed for future prospects. These integrated researches become the gateway for fostering the well-being of mankind and achieving the overall socio-economic sustenance. Also, it accounts for their overall growth and socio-economic progression. Keeping this in view, the 1st International Conference on Global Research Perspectives in Engineering & Technology for Holistic Restructuring (IC-GRPETHR) with the theme: New Vistas in Technological Advancements for Globalization has been organized by P.T.Lee Chengalvaraya Polytechnic College (PTLeeCNPTC) & ISTE Student Chapter, Vepery, Chennai in association with Centre for Research & Training (CRT), National Foundation for Entrepreneurship Development (NFED), Coimbatore, Tamil Nadu on 24-25 September 2021. We are sure this international conference has laid the foundation towards understanding the scientific advancements and technology innovations that are indispensable in upbringing the holistic restructuring across the globe.

Sd/-

Dr. M. Venkatraman
Conference Chair & Principal, PTLeeCNPTC
&
KVJ. Prof. Dr. R. Ganesan
Conference Co-Chair & Chairman, NFED

Conference Objectives

To act as a platform for knowledge sharing and understanding the global perspectives with regard to scientific trends, engineering innovations and technological advancements

To encourage and promulgate the research acumen of students, researchers, scholars, academicians and practitioners from various academia and industry / corporate for holistic restructuring

To integrate the contemporary researches across various sectors for achieving overall socio-economic growth and to address the future challenges

P.T. Lee Chengalvaraya Naicker Trust

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P.T.Lee Chengalvaraya Naicker Polytechnic College is a Government-aided institution established in 1886. The noble philanthropist, Shri P.T.Lee Chengalvaraya Naicker, who lived from 1829 to 1874, had bequeathed his entire properties for the welfare of the downtrodden thereby creating the 'P.T.Lee Chengalvaraya Naicker Trust'. His sole aim was to provide technical education to the underprivileged besides other social and religious activities. The college is a unit of P.T.Lee Chengalvaraya Naicker Trust governed by a board of trustees appointed by the Government of India & Vanniyar Welfare Board, Chennai. The college, which is a registered body of Directorate of Technical Education (DOTE) offers part-time and full-time Diploma courses in both government-aided and self-supporting schemes in the disciplines of Civil Engineering, Mechanical Engineering, Electrical and Electronics Engineering and Electronics and Communication Engineering and Computer Engineering.

ISTE Student Chapter

P.T.Lee Chengalvaraya Naicker Polytechnic College

Vepery, Chennai, Tamil Nadu, India

The Indian Society for Technical Education (ISTE) is a national professional society for 'technical education system' in our country. The major objective of the ISTE is to provide quality training programmes to teachers and administrators of technical institutions in order to update their knowledge and skills in their fields of activity. It also assists and contributes in the production and development of top quality professional engineers and technicians needed by the industry and organizations. ISTE has collaborated with various government organizations, colleges and universities for promoting technical education system and offers guidance and training for students to develop better learning skills and personality.

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&
Distinguished Fellow
&
Programme Director & Executive Board Member
NFED Business Facilitators Forum (NBFF)
&
Associate Professor, Centre for Research & Training (CRT)

Mr. N. R. Jaswin Kumar
Youth Facilitator & Deputy Technical Head

NFED is a unique organization which is predominantly into promulgating entrepreneurship cult across the nation. NFED is driving and thriving on socialistic notion with righteous academicians, corporate citizens and entrepreneurs in its fold, which is established as virtual organization, since 2003 and registered as a Trust on 7th November 2013 towards accomplishing its mission 'In Pursuance to Create Socio-economic Sustenance through Entrepreneurship Development'. It is headquartered at Coimbatore District, Tamil Nadu and pertinent information regarding activities is floated in its aforementioned official websites.

NFED primarily aims in creating enterprising communities at large in Schools, Colleges and Varsities through its training and development activities, faculty development programmes on research and entrepreneurship development, awareness, workshops, refereed conferences, seminars, etc. pertaining to Management Development, Research Emancipation, Technology Innovation and Entrepreneurship Development. It frequently engages in research and development activities by publishing research articles, book chapters and edited books on holistic research, which congregates the disciplines like, engineering, technology, sciences, management, arts and humanities and women development. It also recognizes the talents of teachers, academicians, researchers, professionals, entrepreneurs (including social entrepreneurs), practitioners, freelancers, etc., throughout the globe through its National Awards Ceremony since 2010.

NFED encourages the entrepreneurial spirit of youths and facilitates them with opportunity guidance. Also, serves under a glocal perspective to bring in prosperity by and large to foster entrepreneurial progression amongst all communities in general and women in particular, across the nation. It has associated and collaborated with academia including, schools, colleges, varsities, etc. and also with national and international organizations. NFED has instituted numerous programmes hitherto towards promulgating entrepreneurship development, career development, employability skills, research publications, women empowerment, etc. Thus, to promulgate entrepreneurship development and research & development, the presidium of NFED has constituted two apex units on 7th November 2015 namely NFED Business Facilitators Forum (NBFF) – A Strategic Action Unit under NFED and Centre for Research & Training (CRT) – A Growth Action Unit under NFED.

Centre for Research & Training (CRT)

Centre for Research & Training (CRT) is a growth action unit under National Foundation for Entrepreneurship Development (NFED) initiated on 7th November 2015 with a goal to bring in quality research and promulgate enterprising faculties within the globe. CRT aims to bring in research and development climate through addressing mainstream aspects of research such as research structuring, research insights, publication process and publication strategies, thereby creating and nurturing research acumen within the aspirants across academia and industry. In addition to this, it also frequently engages in conducting Faculty Development Programmes (FDPs), Research Orientation Programmes (ROPs), Quality Publications (QPs) through infusing the importance of research and development. CRT has delivered more than 100 sessions and conducted numerous conferences, seminars, webinars, research workshops and faculty development programmes for understanding the new vistas in research and facilitating research career of academicians, scholars, practitioners, etc., at national and international levels.

NFED Business Facilitators Forum (NBFF)

NFED Business Facilitators Forum (NBFF) is a strategic action unit under National Foundation for Entrepreneurship Development (NFED) initiated on 7th November 2015 with a goal to congregate entrepreneurs to create an entrepreneurial cult across the globe and foster entrepreneurship development process. NBFF aims to bring in an entrepreneurial climate through encouraging youths and interested individuals to vent into entrepreneurial activities by providing the platform for fulfilling their business aspirations. Furthermore, it acts as interfacing plank for enhancing their motivation and inclinations to become prosperous and potential entrepreneurs. In addition to this, it also insists on business growth through the concept of interdependence by creating channels and integrating entrepreneurial talents for collective existence, sustenance and survival. NBFF has delivered more than 100 sessions and conducted numerous national seminars & workshops, international and national webinars in entrepreneurship fundamentals & emerging trends, facilitating entrepreneurship development among teaching faculties and promulgating entrepreneurial acumen of students across the nation.

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Lecturer

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&

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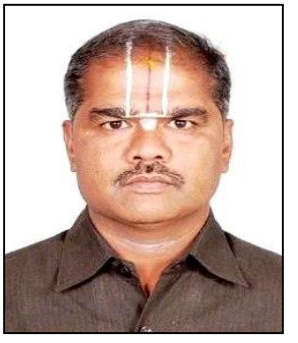
Hon'ble Justice P. Kalaiyarasan
High Court of Madras (Retd.)

Hon'ble Justice Ponnusamy Kalaiyarasan is a former Judge of the Madras High Court. He started his career as Judicial Magistrate in 1983 in the Tamil Nadu State District Judiciary, functioned as District Judge from 1999 to 2013 and served in different capacities in the State of Tamil Nadu such as administrative head of the High Court and State District Judiciary as Registrar General of Madras High Court from 2013 to 2016 and Judge of Madras High Court from 2016 to 2018. During his tenure, he disposed cases relating to national integrity, communal harmony and national security with an overall objective to eradicate lawlessness in the society, wherever it was prevalent, by convicting judiciously those involved in heinous crimes and crimes against the Nation. He was the Chairman of Commission for recommending horizontal reservation for government school students in NEET, which led to the passing of legislation for providing 7.5% reservation in MBBS Course. He was Sitting in the Division Bench for removal of the invasive species, Karuvelam Trees, which were ordered to be uprooted and removed throughout the State to safeguard the environment and protect the water table to help farmers and agricultural sector. As Judge of Principal Court for CBI Cases, Madurai, he made record disposal of 19 cases per year and achieved high disposal rate, which prompted the successors to follow suit. As Registrar General, security of the high court was heightened through round-the-clock surveillance and entrusted to the Central Industrial Security Force by the judicial order of the Bench headed by the Hon'ble Chief Justice. He also served as member of the selection committee to select Vice-Chancellor for the Tamil Nadu National Law University, Tiruchirapalli and Chairman of the Search Committee to select Vice-Chancellor for the Tamil Nadu Dr. Ambedkar Law University, Chennai. He is functioning as Chairman of the State Official Language (Legislative) Commission, Chennai; Chairman of the Tamil Nadu Film Awards Committee; Advisory Member of Thirumala Tirupathi Devasthanam and Chairman of P.T. Lee Chengalavaraya Naicker Trust, Vepery, Chennai, Tamil Nadu.

Conference Chair

Dr. M. Venkatraman



Dr. M. Venkatraman earned his Bachelors' in Mechanical Engineering, Masters' in Thermal Engineering and Doctorate from Anna University, Chennai. He has 22 years of experience in teaching and research. He has guided a number of B.Tech, M.Tech and PhD students in the field of alternative fuels. His area of interest includes I.C. Engines Emissions, Alternative Fuels and Renewable Energy. He has published around twenty-two journal papers and eighteen conference papers to his credit. He has organized three international and twelve national level conferences. He has received research fund worth eight lakhs for installation of wind monitoring system and fund worth nineteen lakhs for installation of 47.5 kw solar plant from the Ministry of New and Renewable Energy, New Delhi. He is a life member of Institution of Engineers India (IEI) and Combustion Institute-Indian Section (CIIS). He is presently working as Principal of P.T.Lee Chengalvaraya Naicker Polytechnic College, Chennai, Tamil Nadu.

Conference Co-Chair

KVJ. Prof. Dr. R. Ganesan

Karma Veer Jyoti. Professor Dr. R. Ganesan earned his doctorate from the reputed IIT Delhi with a special focus on Entrepreneurship Development. He possesses more than two decades of research experience in the field of entrepreneurship and management. He has served in different academia ranging from engineering colleges, arts & science colleges, B-Schools, deemed and international varsities. He has more than 70 research contributions to his credit, which are published in refereed and indexed journals, books, book chapters, monographs and conferences. He is a global author in Women Entrepreneurship, whose research papers are listed in Google Scholar and indexed in ISI (AHCI), MLA Citations, Scopus, EBSCO, ASOS, Cabell's Directory, etc. He is serving as the editorial member and reviewer for numerous journals and possesses more than 19 years of editorial experience. He has edited more than 560 research papers to his credit across refereed and indexed journals, conferences and book chapters at national and international levels. He has hosted 28 national award ceremonies, 6 refereed & indexed national and international conferences, 4 international seminars and 41 FDPs, which include national and international seminars & webinars focusing on Research & Development, Entrepreneurship & Skill Development, Digital Marketing, etc. He has delivered more than 200 sessions on research insights & structuring, publication prospects & strategies, entrepreneurship development, managerial skills, career development, self-management, employability skills, etc., and has inaugurated many EDCs across the nation. In commemorating his laudable academic, research and societal transformational services through upbringing entrepreneurship development, he has been conferred with the prestigious title Karma Veer Jyoti (KVJ) by the Indian Confederation of Non-Governmental Organizations (iCONGO), New Delhi in 2015. He has also been bestowed with PFLA Excellence Award for his 'Outstanding Service to Education and Entrepreneurs Community' from People First Leadership Academy, Bengaluru in 2019, 'Order of Eminence' for his global contribution to research, teaching and training in Entrepreneurship Development by the Presidium of NFED in its 10th National Teachers' Day Award in 2019 and MTC Global Distinguished Teacher Award in Entrepreneurship Development in the 9th World Edu Summit 2019 by Management Teachers Consortium (MTC) Global, Bengaluru. He is the Founder and Chairman of the renowned National Foundation for Entrepreneurship Development (NFED) and Founder & Chair of NFED Business Facilitators Forum (NBFF) and Centre for Research & Training (CRT), Coimbatore, Tamil Nadu. He is also serving as the Honorary Board of Director – Learning & Development / Chief Learning & Development Officer, Talouns Pte Ltd., Singapore.

Conference Convener

Dr. S. Aruna

Dr. Aruna has earned Bachelor of Civil Engineering from Periyar Maniammai College of Technology for Women, Thanjavur; M.E. in Geoinformatics from Institute of Remote Sensing and PhD in Civil Engineering from College of Engineering, Anna University, Chennai. She has 15 years of teaching and 3 years of industry experience. She has served as NSS programme officer, additional chief superintendent for board examinations, nodal officer at PTLeeCNPTC, environmental development thrust area manager in CIICP and involved in activities for clean and green environment in the college campus. She has participated in many workshops, short-term courses, presented papers in national and international conferences and published in numerous journals in the topics related to geographical information system and mapping, remote sensing applications and geospatial techniques. She has organized State and National level workshops and seminars. She is also a Life member of the Indian Society for Technical Education. At present, she serves as ISTE Coordinator and Lecturer in the Department of Civil Engineering at P.T.Lee Chengalvaraya Naicker Polytechnic College, Vepery, Chennai, Tamil Nadu.

Conference Director

Mrs. Ramya Kandavel

Mrs. Ramya Kandavel earned her Master's in Statistics from University of Madras, Chennai and Master's in Applied Psychology from Bharathiar University, Coimbatore. She holds a Diploma in Transactional Analysis from South Asian Association of Transactional Analysts (SAATA). She is a Psychological Counsellor and a Master practitioner in Neuro-Linguistic Programming. Her expertise as a counsellor includes Personal One-to-One Counselling, Psychotherapy, Stress Management and Dream Interpretation. She has published papers and book chapters in Edited Books. She commenced her professional career in the ITES Sector and possesses more than 16 years of administrative experience at various corporates and academic institutes. She joined as an active member in the renowned National Foundation for Entrepreneurship Development (NFED) and has facilitated its national events as Event Anchor, Programme Coordinator, Programme Director and Chief Coordinator. She has hosted and organized three international conferences, faculty development programmes (FDPs) and numerous webinars focusing on research & development, entrepreneurship development, digital marketing, etc., at national and international levels. She is the Executive Chairman & Director of NFED Trust, Coimbatore, Tamil Nadu and also functioning as the Chief Coordinator and Member Secretary of the NFED Business Facilitator Forum (NBFF) and Centre for Research & Training (CRT). She oversees the entire administrative activities of NFED and promulgates its social sensational programmes across the nation.

1st International Conference on Global Research Perspectives in Engineering & Technology for Holistic Restructuring (IC-GRPETHR)

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Chief Guest

Dr. Pratapsinh Kakaso Desai
President
Indian Society for Technical Education (ISTE) Head Quarters
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Indian Society for Technical Education (ISTE)
Tamil Nadu Section

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Trustee, P.T.Lee Chengalvaraya Naicker Trust
Chennai, Tamil Nadu

Dr. N. Veerappan
Trustee, P.T.Lee Chengalvaraya Naicker Trust
Chennai, Tamil Nadu

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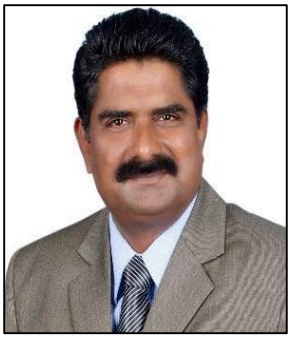
Dr. Pratapsinh Kakaso Desai
President
ISTE Head Quarters
New Delhi



Dr. Pratapsinh Desai earned his PhD from Shivaji University, Kolhapur. He has completed Master's Degree in Mechanical Engineering and Master of Business Administration. He hails from a family of freedom fighters, who served our nation, and was raised with strong values and principles with a prominent background of social reforms, patriotism and education. He has numerous national and international research papers to his credit. He has delivered keynote addresses in India and various international conferences. He has visited almost 35 prominent universities in the world to study technical education scenario in the world. He has actively participated as member of All India Federation for Polytechnic Teachers Association. During his tenure in various organizations, he was instrumental in advocating the issue of granting pay band-4 to all engineering and polytechnic colleges. He is a member of various committees and task teams constituted by government of Maharashtra. He has participated as member of Indian delegation on various International meets such as World Engineering Education Forum (WEEF), International Federation of Engineering Education Societies (IFEES), Global Engineering Dean's Council (GEDC) in countries like US, Canada, England, France, Germany, Brazil, China, Japan, Australia, etc. He is the member representing India in Global Deans Council, Chairman of Indian Engineering Dean's Council, Governing Council Member of Engineering Staff College of India, Council Member of All India Council for Technical Education, Advisory Committee Member of overall curriculum development cell, IIT, New Delhi, etc. Currently, he is the President of Indian Society for Technical Education (ISTE), New Delhi.

Guest of Honour

Dr. A. Sankara Subramanian
Principal
GRG Polytechnic College, Coimbatore
&
Chairman
ISTE, Tamil Nadu Section

Dr. A. Sankara Subramanian obtained his Bachelors' in Electrical and Electronics Engineering from Mepco Schlenk Engineering College, Master of Engineering in Power systems from Madurai Kamaraj University and Doctorate from Anna University and has about 28 years of experience in academia. He has published numerous research articles in national and international journals, presented technical papers in various international conferences and conventions and has authored 6 books to his credit. He has received funds from AICTE on distinguished projects. He serves as Governing Council Member of Coimbatore Productivity Council; Head of the Nodal Squad, Directorate of Technical Education; Executive Committee Member, ISTE, New Delhi; Board of Studies Member at Sri Ramakrishna Mission Vidyalaya, Coimbatore; Review Committee Member for VADI Scheme sponsored by NABARD for tribal people in Anaikatty area, etc. He has many laurels to his credit such as Best ISTE Chapter Secretary Award in 2003, Arutchelver Dr. N. Mahalingam Award for the Best Polytechnic Teacher in 2005, Outstanding HAF Awards from Jaycees International India in 2010, Dr. Amitabh Bhattacharyya Memorial Award for the Best Polytechnic College for the years 2016-2019, Best Industry Institute Interaction Award (SEED), Best Performer Award for implementing skill development courses (TNSDC) in the role of empowering the rural youth, etc. He is professionally associated with bodies like Fellow of Institution of Engineers (I), Member of Charted Engineers (I), Member of Indian Society of Systems for Science and Engineering, Member of Coimbatore Productivity Council. At present, he serves as Principal of GRG Polytechnic College at Coimbatore as well as Chairman of Indian Society for Technical Education (ISTE), Tamil Nadu Section.

1st International Conference on Global Research Perspectives in Engineering & Technology for Holistic Restructuring
(IC-GRPETHR)
24-25 September 2021

Keynote Speakers
Day I (24th September 2021)

Dr. Baby Sam Saamuel
General Manager
InterTech LLC
&
Vice-Chairman, Knowledge Oman
Sultanate of Oman

Ms. Theviga Rani Wemel
Co-Founder & Chief Operating Officer
LTT Global Communications Sdn Bhd
Selangor DE, Malaysia

Dr. R. Manimegalai
Professor & Head
Department of Computer Science & Engineering
PSG Institute of Technology & Applied Science
Coimbatore, Tamil Nadu

Dr. Naveen B P
Associate Professor & Head
Department of Civil Engineering
School of Engineering & Technology
Amity University (Gurgaon Campus)
Gurugram, Haryana

1st International Conference on Global Research Perspectives in Engineering & Technology for Holistic Restructuring
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Keynote Speakers
Day II (25th September 2021)

Mr. Owaiz Khan
Co-Founder & Chief Product Officer
Talouns Pte Ltd., Singapore

Dr. Mithileysh Sathiyanarayanan
Founder & Chief Executive Officer
MIT Square
London, United Kingdom

Dr. B. Surekha
Professor
Department of Electronics & Communication Engineering
K.S. Institute of Technology
Bengaluru, Karnataka

Dr. R. Deepalakshmi
Assistant Professor
Department of Computer Applications
The Tamil Nadu Dr. Ambedkar Law University
Chennai, Tamil Nadu

Keynote Speaker

Dr. Baby Sam Saamuel
General Manager
InterTech LLC
&
Vice-Chairman
Knowledge Oman, Sultanate of Oman

Dr. Baby Sam is an entrepreneur, mentor and consultant based in the Sultanate of Oman. He is also a researcher and author and is active in the educational sector. He is involved with higher education institutes as advisory committee member and is a member of the standing committee in academics under the National Council of Teacher Education, a Government of India enterprise. He serves as organization mentor for Trifoil Advertising SAOC and Studio.T and acts as business advisor for start-ups in Sultanate of Oman. He is the General Manager of InterTech LLC and Vice-Chairman of Knowledge Oman, the largest voluntary organization in the nation.

Keynote Speaker

Ms. Theviga Rani Wemel
Co-Founder & Chief Operating Officer
LTT Global Communications Sdn Bhd
Selangor DE, Malaysia

Ms. Theviga Rani Wemel is a global pioneer and leader in the Ed-Tech industry. She formed the LTT Global with a vision to empower people and transform organizations by making digital learning accessible and affordable for all. The learning platforms have been recognized by the United Nations and the Organisation for Economic Cooperation & Development (OECD) as proven building capacity platforms. As a Technology Service Provider, her platform is endorsed by the Industry Expert Panel and she is part of the Jom Transform Program by FinLab-UOB and helps with the digital transformation program for SMEs' in Malaysia and in the region. She continues her work with leading partners globally to support sustainable talent upskilling. She has also been instrumental in implementation of numerous projects to empower women, youth, people with special needs including the visually impaired and refugees to have access to quality learning to up-skill themselves. She has received numerous awards globally including the Entrepreneurial Excellence Award for astounding services in the field of Global Mobile Learning and Edutainment Services at the 7th National Entrepreneurs' Day Awards 2020 by National Foundation for Entrepreneurship Development (NFED), Coimbatore, Tamil Nadu and Asia CEO Community's Inspirational Female Business Leaders Award. She serves as board member for various organizations globally and also an honorary advisor, mentor and speaker. Currently, she is the Co-Founder & COO of LTT Global Communications Sdn Bhd, Selangor DE, Malaysia.

Keynote Speaker

Dr. Manimegalai. R
Professor & Head
Department of Computer Science & Engineering
PSG Institute of Technology and Applied Research
Coimbatore, Tamil Nadu

Dr. R. Manimegalai is an alumnus of IIT Madras, College of Engineering Guindy and PSG College of Technology. She has more than 25 years of industry, academic and research experience. She has worked as software engineer and has served in various educational institutions in capacities as Dean, Director and Principal and has contributed to various aspects of teaching-learning and accreditation process. Her areas of interest include reconfigurable computing, VLSI algorithms, security in IoTs, embedded and distributed systems. She has published more than 150 papers in refereed journals and conference proceedings including one edited book and eight book-chapters. Her research papers have been abstracted and indexed in SCI, SCI-E, Scopus and Thomson Reuters. She has chaired several sessions in national and international conferences and has delivered many keynote speeches. She is a fellow of the Institution of Engineers India and is an active member of other professional bodies such as IEEE, Computer Society of India, ISTE, ACM and VLSI society of India. Currently, she is the Professor & Head of the Department of Computer Science & Engineering at PSG Institute of Technology and Applied Research, Coimbatore, Tamil Nadu.

Keynote Speaker

Dr. Naveen B P
Associate Professor & Head
Department of Civil Engineering
School of Engineering & Technology
Amity University, Gurgaon, Haryana

Dr. Naveen has completed his B.E. in Civil Engineering from University Visvesvaraya College of Engineering, Bangalore; M.Tech in Geotechnical Engineering from National Institute of Technology Karnataka, Surathkal; M.S, Ph.D. as well as Post-Doctoral Research in Geotechnical Engineering from Indian Institute of Science, Bangalore. He has over 15 years of diverse and progressive experience in the field of geotechnical engineering, geo-environmental engineering, metro works, waste management, and ground improvement including overseas work experience in Kenya, Japan and USA. He has numerous research papers in SCI and Scopus-indexed journals, conference proceedings, books and book chapters to his credit. He also serves as reviewer for several journals in his field and is also a chief editor for an international journal. He has reviewed several research articles in Elsevier, SAGE and Springer. He is the recipient of various awards & accolades including ISSMGE Foundation Award from Centre for International Co-operation in Science (CICS); Young Researcher and Scholar Icon Award in 2017; Young Educator and Scholar Award in 2017 and 2018 and Senior Educator and Scholar Award in 2020 from National Foundation for Entrepreneurship Development (NFED), Coimbatore; IEI Young Engineers Award and Professional Excellence Award in 2018, Young Geotechnical Engineer in 2019, etc. Presently, he serves as Associate Professor and Head, Department of Civil Engineering, School of Engineering & Technology, Amity University, Gurgaon, Haryana.

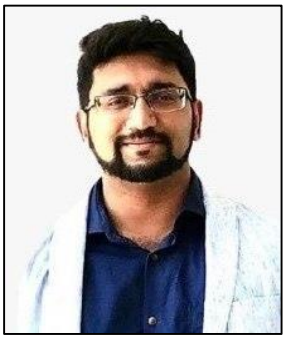
Keynote Speaker

Mr. Owaiz Khan
Co-Founder & Chief Product Officer
Talouns Pte Ltd., Singapore

Mr. Owaiz Khan has earned his Bachelors' in Electronics & Communications and Masters' in Marketing Management. He has over 15 years of experience in IT industry out of which he has spent more than 9 years of his IT career in IBM. During his tenure, he has supported clients in North America, United Kingdom and Australia. He is a Master Black Belt, Prince 2, Design Thinking, Agile Scrum practitioner, etc. He provides business support to improve their process, identify new opportunities and implement new technologies. He has conducted numerous technical sessions on digital transformation, business development, social media marketing workshops & demos, data analytics & statistical insights, entrepreneurship development, placement drives, cultural events, seminars, webinars, etc. He is also into student internships and professional recruitments. He is the recipient of National Young Entrepreneur Award from the renowned National Foundation for Entrepreneurship Development (NFED) in its 6th National Entrepreneurs' Day Awards 2019. He is the Life Member and Distinguished Fellow of NFED and also serves as Honorary Dean (Training & Development), Technical Head, Programme Director & Executive Board Member of NFED Business Facilitators Forum (NBFF) and Associate Professor, Centre for Research & Training (CRT), NFED, Coimbatore, Tamil Nadu. He is also a motivation speaker and student counsellor, wherein he facilitates youth communities to choose the right career path and / or entrepreneurial journey by guiding and mentoring them. Currently, he is the Co-Founder & Chief Product Officer of Talouns Pte Ltd., Singapore.

Keynote Speaker

Dr. Mithileysh Sathiyanarayanan
Founder & Chief Executive Officer
MIT Square, London, United Kingdom



Dr. Mithileysh is an Indian-born Scientist and Entrepreneur based in London. He closely works with 'Make in India' initiatives. His expertise in technology research ranges from industrial projects to academic domains such as Education, Engineering, Healthcare and Green Solutions. He holds a PhD from the City, University of London, Post-doctoral from industry and pre-doctoral fellowship from the University of Brighton, United Kingdom. He has been invited as a research consultant at various industries and is also a peer reviewer for many international conferences and journals around the globe and serves as technical program committee member for many international conferences. He is an active member of many professional bodies like IEEE, IET, ACM and IAENG. His major research focuses on Smart Technologies, Communication Systems & Science, Data Science, Information Science, Human-computer Interaction, Visualisation, Social Informatics and Entrepreneurship. He has also won several research awards, teaching awards, entrepreneurship awards including the Young Scientist Award for his research in collaboration with Nokia, Finland and Young Entrepreneur Award in the 7th National Entrepreneurs' Day Awards 2020 by the renowned National Foundation for Entrepreneurship Development, Coimbatore. He is also the Executive Board Member of NFED Business Facilitators Forum, Coimbatore, Tamil Nadu. At present, he is the Founder & Chief Executive Officer of MIT Square, London, United Kingdom.

Keynote Speaker

Dr. B. Surekha
Professor
Department of Electronics & Communication Engineering
K.S. Institute of Technology, Bengaluru, Karnataka

Prof. Dr. B. Surekha earned her Doctorate in Image Processing with a special focus on Copyright Protection of Images from Jawaharlal Nehru Technological University, Hyderabad. She has served in various engineering colleges and has over 16 years of experience. Her current research interests are Image and Video Analytics, Machine Learning, Biometrics, Biomedical Signal and Remote Sensing. She has filed 1 Indian patent, published 9 books, 22 book chapters and more than 50 Scopus indexed research papers. Her international recognition includes professional memberships & services in refereed organizations, programme committees, editorial & review boards, wherein she has been an editor and reviewer for many refereed and indexed journals published by IEEE, IET, Elsevier, Taylor & Francis, Springer, IGI-Global, etc. She has received several research grants and awards, from Professional bodies and Karnataka State Government. She is the recipient of 'Young Woman Achiever Award' for her contribution in Copyright Protection of Images, 'Distinguished Woman Educator and Scholar Award' from National Foundation for Entrepreneurship Development in its 5th National Women's Day Awards 2018, Woman Achiever's Award from The Institution of Engineers (India) for her prominent research and innovative contributions. She currently serves as Professor in the Department of Electronics and Communication Engineering at K.S. Institute of Technology, Bangalore, Karnataka.

Keynote Speaker

Dr. R. Deepalakshmi
Assistant Professor
Department of Computer Applications
The Tamil Nadu Dr. Ambedkar Law University
Chennai, Tamil Nadu

Dr. Deepalakshmi obtained her Doctorate in Computer Science from University of Madras. She has more than 15 years of teaching experience and 8 years of research experience in the field of Data Mining, Algorithm Analysis, Geographical Data Mining, Bioinformatics, Image Mining and Cybercrime. She has published numerous articles in national and international journals, presented papers in many conferences and has published more than 5 books in her discipline. She has also served as coordinator for many international conferences, seminars and workshops and delivered special lecturers and sessions in topics such as cyber security, intellectual property rights, plagiarism, etc. In commemorating her remarkable achievements, she has been bestowed with Best Teacher Award in 2017, Young Woman Educator & Scholar Award in the 7th National Women's Day Awards 2020 by National Foundation for Entrepreneurship Development (NFED), Coimbatore. She is also the life member of Computer Society of India (CSI) and Distinguished Fellow of NFED, Coimbatore. Currently, she is serving as Assistant Professor in the Department of Computer Science, The Tamil Nadu Dr. Ambedkar Law University, Chennai, Tamil Nadu.

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24-25 September 2021

Valediction Keynote Speakers

Dr. Amit Kumar Srivastava
Director
All India Council for Technical Education (AICTE)
New Delhi

Dr. Vandana Gupta
Professor & Head
Parul Institute of Design (PID) & Parul Institute of Fine Arts (PIFA)
Parul University
Vadodara, Gujarat

Dr. S. Veenadhari
Associate Professor
Department of Computer Science & Engineering
Rabindranath Tagore University
Bhopal, Madhya Pradesh

Dr. V. Sunitha
Associate Professor
Department of Geology
Yogi Vemana University
Kadapa, Andhra Pradesh

Valediction Keynote Speaker

Dr. Amit Kumar Srivastava
Director
All India Council for Technical Education (AICTE)
New Delhi

Dr. Amit Kumar Srivastava earned his Master's as well as Doctorate in Public Administration from the University of Lucknow, Uttar Pradesh. His research area is Good Governance. He has published various journals and book chapters focusing on governance initiatives, e-governance, e-learning, role of open and distance learning, MOOCs, etc. He has over 18 years of experience and has served in various institutions across India such as IIM Ahmedabad and in Indira Gandhi National Open University (IGNOU) in the capacity as Assistant Regional Director (Senior Scale and Selection Grade Level) in the States of Madhya Pradesh, Jharkhand, Haryana and Uttar Pradesh. At present, he is the Director of All India Council for Technical Education (AICTE), New Delhi.

Valediction Keynote Speaker

Dr. Vandana Gupta
Professor & Head
Parul Institute of Design & Parul Institute of Fine Arts
Parul University, Vadodara, Gujarat

Dr. Vandana Gupta has done her B.Sc in Home Science and M.Sc. in Clothing & Textiles from Government Home Science College, Panjab University, Chandigarh. She earned her PhD in Textile and Apparel Designing from CCS Haryana Agricultural University, Hisar. She has nearly 15 years of teaching and research experience. Her research area includes Indian Traditional Art and Craft, Upcycling of Textile and Apparel Waste, Medical Textiles, Nanotechnology, Archaeological/Museum Textiles and Natural Dyeing. Her research articles are published in Scopus and Web of Science indexed journals and has presented papers in refereed conferences. She has attended various trainings in textile designing, natural dyeing on woolens, research tools for textile testing, art aesthetics & design, cotton production & processing, textile & apparels, AutoCAD 2D & 3D and basics of research in creative fields. She is the Life Member of Indian Science Congress Association, Cotton Research and Development Association and Textile Association of India. She has been bestowed with Young Educator & Scholar Award in the 12th National Teachers' Day Awards 2021 by National Foundation for Entrepreneurship Development (NFED), Coimbatore, Tamil Nadu and is also a Distinguished Fellow of NFED. She is presently working as Professor and Head of Parul Institute of Design and Parul Institute of Fine Arts under Parul University, Vadodara, Gujarat.

Valediction Keynote Speaker

Dr. S. Veenadhari
Associate Professor
Department of Computer Science Engineering
Rabindranath Tagore University, Bhopal, Madhya Pradesh

Dr. S. Veenadhari has over 20 years of academic and research experience with 70 research papers published in reputed International and National journals. Her area of expertise is Agricultural Data Analytics through Machine Learning. She has published several book chapters, technical bulletins, project reports, working papers, training and teaching reference manuals. She has supervised around 12 doctoral research scholars. She has delivered number of invited talks in many national platforms and has served as expert member in various committees at different institutions. She is presently working as Associate Professor in the Department of Computer Science & Engineering at Rabindranath Tagore University, Bhopal, Madhya Pradesh.

Valediction Keynote Speaker

Dr. V. Sunitha
Associate Professor
Department of Geology
Yogi Vemana University
Kadapa, Andhra Pradesh

Dr. Sunitha Vangala earned her Post-Graduation in Geology from Sri Venkateswara University, Tirupati and PhD in Applied Geochemistry from Osmania University, Hyderabad. She has about 14 years' experience in academics and research and has contributed significant work on quality characterization of groundwater and risk assessment using geospatial and statistical tools in southern Andhra Pradesh. She has authored 80 SCI journal articles, has participated and presented in national and international conferences and workshops. She has organized NSS camps, awareness programs on women empowerment, delivered sessions on groundwater sustainability, remote sensing, natural resource exploration, etc. She is a member of various international and national scientific bodies such as the International Association of Hydrological Sciences (IAHS), UK; South Asia Institute of Science and Engineering (SAISE); Indian Geological Congress; Indian Science Congress Association; National Environmental Science academy (NESA), Indian Association of Hydrologists, Fellow of Organization for women in science and technology (OWSD) and Life Member of NFED. She is the recipient of Raman Fellowship for Post-Doctoral Research from UGC, Young Scientist Award from Department of Science and Technology (DST), New Delhi, Andhra Pradesh Scientist Award 2020 for her contributions in the field of Geology and Senior Educator & Scholar Award from National Foundation for Entrepreneurship Development (NFED), Coimbatore in its 12th National Teachers' Day Awards 2021. At present, she is working as Associate Professor in the Department of Geology at Yogi Vemana University, Kadapa, Andhra Pradesh.

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Session Chairs
Track 1: Sciences (SCI)

Dr. K. Kalaiselvi
Professor
Department of Computer Applications
School of Computing Sciences
Vels Institute of Science, Technology & Advanced Studies (Deemed University)
Chennai, Tamil Nadu

Dr. Pooja More
Programme Coordinator
Skill Development Centre
Savitribai Phule Pune University
Pune, Maharashtra

Dr. R. Parameswari
Professor
Department of Computer Science
School of Computing Sciences
Vels Institute of Science, Technology & Advanced Studies (Deemed University)
Chennai, Tamil Nadu

Dr. A. Uma Maheswari
Associate Professor & Head
Department of Mathematics
Quaid-E-Millath Government College for Women (Autonomous)
Chennai, Tamil Nadu

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Session Chairs
Track 2: Engineering & Technology (ENT)

Dr. A. N. Jayanthi
Associate Professor
Department of Electronics & Communication Engineering
Sri Ramakrishna Institute of Technology
Coimbatore, Tamil Nadu

Asso. Prof. S. Sivakumar
Head
Department of Automobile Engineering
Kumaraguru College of Technology
Coimbatore, Tamil Nadu

Ms. D. Susmitha
Founder & Managing Director
Suntowa Technologies Pvt. Ltd.
Chennai, Tamil Nadu

Dr. S. Kavitha
Professor
Department of Civil Engineering
Jain University
Bengaluru, Karnataka

Conference Paper Abstracts

A Study on Structure and Magnetic Properties of Gadolinium Garnet Prepared by Mechanical Milling

Ms. Devi. S
Lecturer (Physics)
Department of Basic Engineering
P.T.Lee Chengalvaraya Naicker Polytechnic College
Vepery, Chennai, Tamil Nadu

Abstract

Ferri-magnetism is exhibited by ferrites and magnetic garnets. Some of the ferri-magnetic materials includes GdIG (Gadolinium iron garnet), cubic ferrites composed of iron oxides and other elements such as aluminium, cobalt, nickel, manganese and zinc. These garnets possess unique magnetic, magneto-optical, thermal, electrical and mechanical properties. In this present research study, the ferric nature of Gadolinium iron garnet $Gd_3Fe_5O_{12}$ powders have been synthesized using ball milling technique in a planetary ball milling. The X-Ray Diffraction Analysis (XRD) results indicates the cubic structure with the phase group of $Ia\bar{3}d$. The lattice parameters and the morphological structures are studied through Scanning Electron Microscope (SEM). The room temperature magnetization has been observed using vibrating sample magnetometer, which shows the ferri magnetic nature of $Gd_3Fe_5O_{12}$.

Teaching and Learning Vocabulary Effectively in EFL Classroom

Ms. K. Chitra
Lecturer (English)
Department of Basic Engineering
P.T.Lee Chengalvaraya Naicker Polytechnic College
Vepery, Chennai, Tamil Nadu

Abstract

The learning vocabulary items is an integral part of learning any language. This is true for English as a second language (ESL) or English as a foreign language (EFL). It is to be noted that language skills cannot be developed without vocabulary knowledge. Moreover, when teaching English as a foreign language to a second language learners this should be considered as well. Also, when learning a new foreign language, teaching vocabulary plays a vital role, and increasing vocabulary knowledge is a valuable and effective tool. The importance of vocabulary is demonstrated every day in learning place and outside of it. The classroom has a broader vocabulary for those who excel. Language learners should be aware of its fundamental and essential role in the learning process. Furthermore, learning more words allow them to express more clearly and plainly, which demonstrate how important is the vocabulary. Thus, the present study attempts to understand the teaching and learning vocabulary's effectiveness in EFL classroom.

A Study on the Properties of Semiconducting Material – Antimony

Ms. R. Meena
Lecturer (Physics)
Department of Basic Engineering
P.T.Lee Chengalvaraya Naicker Polytechnic College
Vepery, Chennai, Tamil Nadu

Abstract

Antimony is a semi-metal that is already used in electronics for some semiconductor devices, such as infrared detectors. As a material, it is only a couple of atomic layers thick and has a high charge mobility - the speed a charge moves through a material when being pulled by an electric field. Antimony's charge mobility is much higher than other semiconductors with similar size, including silicon. This property makes it promising as the building block for post-silicon electronics. There is no doubt that semiconductors changed the world beyond anything that could have been imagined before them. It is to be noted that people probably or always needed to communicate and process data. In this context, thanks to the semiconductors, which made these two important tasks to become easier and take up infinitely less time than other modes like the times of using vacuum tubes. Thus, semiconductor materials are the building blocks of the entire electronics and computer industry. The small size, lightweight, high speed, and low power consumption devices would not be possible without integrated circuits (chips), which consist of semiconductor materials. This paper provides a general discussion of semiconductor materials, their history, classification and the temperature effects in semiconductors. Also, the details about the impact of temperature on the Metal–Oxide–Semiconductor Field-Effect Transistor (MOSFET) energy band gap, carrier density, mobility, carrier diffusion, velocity saturation, current density, threshold voltage, leakage current and interconnect resistance along with applications of semiconductor materials in different sectors of modern electronics and communications.

A Comparative Study on Face Detection Mechanism in Attendance Management

Ms. B. Harini Shree
Analyst – Software Engineer
Agilisium Consulting India Private Limited
Chennai, Tamil Nadu

Abstract

Face recognition is identity verification process by scanning a person's face and matching it within the database of faces. The success of any recognition technique depends profoundly on the alternative options employed by the classifier. The facial recognition technologies have undergone large-scale advancements in performance in the last decade and such systems are now popular in fields such as security and commerce. The present research work details a real-time automated attendance system, which will mark attendance of students and employees in an institution / organization. A good kind of recognition strategies for image recognition, particularly for face image recognition are reported in various research studies. During this survey varied strategies for image recognition are classified as holistic strategies, feature-based strategies and hybrid strategies respectively. An extensive literature study from the related articles published over the last twenty-five years has been reviewed and observed. The results from various studies revealed that illumination, angle of sight and distance lead to incorrect outputs are the fundamental problems with regard to face image recognition. Thus, in order to overcome the aforementioned drawbacks, ANFIS (Adaptive Neuro-Fuzzy Inference System) has proved to be more precise in face recognition and discussed in the study.

Automatic Covid Testing Booth Using IOT

Mr. K. Umapathy
Associate Professor
Department of Electronics and Communication Engineering
SCSVMV (Deemed University)
Kanchipuram, Tamil Nadu
&
Mr. K. Kumaravel
Lecturer
Department of Computer Science Engineering
P.T.Lee Chengalvaraya Naicker Polytechnic College
Vepery, Chennai, Tamil Nadu

Abstract

During the pandemic period, testing of Covid is a key role in order to fight the contagious virus. It is quite significant that this Covid testing is being carried out only in the Covid testing centers, but there are a lot of disadvantages with regard to manual testing methodology. The reason being some of the tests are time consuming and delayed, wherein it is subjected to human errors due to a large amount of sample collection, etc. Hence, the present research paper proposes an automated system for testing procedure by which 80 percent of the manual work can be avoided. Also, the sophistication in Covid testing is improved in an effective manner.

Physico-Chemical Analysis and Treatment of Sugar Industry Effluent using Novel Bio-Carbon Technology

Mr. R. Sundaram
Head (i/c) & Lecturer (Sr) Chemistry
&
Ms. Saranya P
Lecturer (Chemistry)
Department of Basic Engineering
P.T.Lee Chengalvaraya Naicker Polytechnic College
Vepery, Chennai, Tamil Nadu

Abstract

The environment is under increasing pressure from solid and liquid wastes emanating from the sugar industry. The sugar industry is one of the most widespread industries, produce large amount of wastewater containing toxic pollutants including heavy metals. Sugar mills play a major role in polluting the water bodies and land by discharging a large amount of wastewater as effluent. The sugar mill effluents are having high amount of suspended solids, dissolved solids, BOD, COD, chloride, sulphate, nitrates, calcium and magnesium. The disagreeable odour emanating from the decomposition of solid waste, presence of inorganic and volatile organic compounds is normally associated with various operational activities. Moreover, a significant part of the chemical used in the sugar processing is not actually absorbed in the process, but is discharged into the environment. The wastewater characterization is an integral part of treatment and management strategies for industrial effluents. Also, sugar processing generates many complex and highly loaded effluents that require treatment before being discharged into receiving waters. The level of Biochemical oxygen demand (BOD) and chemical oxygen demand (COD) are the key indicators of wastewater characteristics and treatment. The current study has been carried out to assess some physical and chemical parameters in sugar wastewaters, and consequently their risk into receiving water body. Subsequently, a new bio-carbon methodology is developed for the treatment of Sugar industry effluents. The preliminary bio-sorption study mainly supports the efficient removal of organic pollutants in the effluents.

Inequality of Women in Education - Study using Fuzzy Relational Mapping (FRM) Approach

Dr. B. Kamaraj
Sr. Lecturer (Mathematics)
Department of Basic Engineering
P.T.Lee Chengalvaraya Naicker Polytechnic College
Vepery, Chennai, Tamil Nadu

Abstract

Education plays a major role for the development of human beings to recognize their rights in terms of social, political and economic growth of a country. More than one-third of illiterate women around the world belong to India. Also, still women are excluded from the education due to inequality practices within the society. Thus, the inequalities of women in education not only affects the women's' lives but also on the economic development of the country. The main aim of the study is to identify the factors, which creates hurdles for women in getting education using Fuzzy Relational Mapping (FRM). The reason being FRM techniques helps us to study the uncertainties and facilitates the possibilities for understanding the future progression towards development.

Modified Hill Cipher Using Base 64 Conversion

Mr. D Sandeep Reddy
Student
Department of Computer Science & Engineering
&
Dr. S. Kiran
Assistant Professor
Department of Computer Science & Engineering
&
Dr. A. Ashok Kumar
Assistant Professor
Department of Physics
YSR Engineering College of Yogi Vemana University
Proddatur, Andhra Pradesh

Abstract

Information security is an important character in transferring data. The focus of any information security program is protecting the confidentiality, integrity, and availability (the CIA triad) of information. Security is the method of maintaining information securely by protecting it from unauthorized users. In the recent years, the need for security has increased in various fields to attain a secure medium for the transmission of data. Cryptography is one of the important technological areas, which will provide security to the data by using various cryptographic algorithms. The Hill cipher (HC) is one of the famous and known symmetric encryption algorithm based on linear matrix transformation. Hill Cipher has several advantages such as masquerading letter frequencies of the plaintext and high throughput. Despite the ease and speed of Hill Cipher, the traditional Hill Cipher is no longer used due to the vulnerability against known plaintext-ciphertext attacks. Hence, to enhance the security, a new variant of the Hill cipher method is proposed. The proposed algorithm develops in three stages firstly, convert the plain text into 8-bit binary form; secondly, remove the last two bits from MSB positions as they are 0 in the MSB and 1 in the MSB-1 position respectively, this reduces the size of the data. Now, apply the base 64 Conversion to each row, in the final stage we perform the traditional Hill cipher algorithm (modulo 64), wherein the researchers used the invertible matrix as key, and this produces the ciphertext. The proposed technique reduces the size of data.

Influence of Noise on the Performance of Modified Canny Edge Detection Technique Using S-Membership Function

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Abstract

The edges in a digital image provide important information about the objects contained within the image since they constitute boundaries between objects in the image. The extraction of these features can be further used for real time purposes like face recognition, computer vision algorithms etc. However, it is somewhat difficult to extract out all the edges efficiently without affecting the structural properties of an image. The edges in an image represents a swift change in the intensity of an image and noise in an image also signifies the same so what happens when noise is abundant in an image is quite important. Furthermore, edge detection in noisy images is a bargain between denoising and edge preserving capability. Hence, the various smoothing filters are studied in the viewpoint of edge detection too in this study. The researchers intend to present a description and performance evaluation of an efficient and reliable edge-detection tool. Moreover, in the proposed method, a grayscale noisy image is denoised using various filters like Gaussian, median for comparison. In furtherance, the edge map of the image is obtained by using modified canny with s-membership edge detection algorithms. The results are analysed in all these cases using various parameters like TP, TN, FP, FN, false alarm etc. Also, the noise level is increased and the behaviour of filters is studied in the viewpoint of edge preservability.

A New Digital Encryption and Decryption Process using Bit Shifting & 3*3 Matrix XOR Operation Methodology

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Abstract

In today's technological world the information security could be a difficult issue. There is a requirement for a stronger encoding that is extremely exhausting to crack. Moreover, in a Bit Shifting and Stuffing (BSS) system to represent a printable character it only needs 7 bits as per its ASCII value. In the computer system to represent a printable character it requires one byte, i.e. 8 bits. It is clear from the aforementioned expressions that a printable character occupies '7' bits and the last bit value is '0', which is not useful for the character. In BSS method it is stuffing a new bit in the place of unused bit, which is shifting from another printable character. Thus, in this BSS methodology after encryption, for every eight bytes of plain text it will generate seven bytes' cipher text and in decryption, for every seven bytes of cipher text, it will reproduce eight bytes of plain text. The present research proposed a new replacement algorithmic rule for Digital encoding called as 'Bit Shifting and Matrix XOR Operation Conversion Technique', which increases the complexity of encryption of the data as well as form of the data. The experimental results showed that the new theme is very fast in encoding and safer.

Adaptive Neuro-Fuzzy Inference System (ANFIS) based Maximum Power Point Tracking (MPPT) for Solar Photo Voltaic (SPV) System

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Abstract

The Solar Photo Voltaic (SPV) systems are conveniently used as an alternate source of energy. The solar energy is a one of the forms of renewable source of energy whose output power is greatly affected by solar irradiation and temperature. It is to be noted that the maintenance of constant power output irrespective of solar array constants is quite challenging. Hence, for obtaining proper and constant power output one needs a maximum power tracking mechanism. This study provides the comparison of 4 different methods, which includes perturb and observation method (P & O), incremental conductance method, fuzzy logic controller, and neuro-fuzzy controller. The results compared with Fuzzy logic and other Maximum Power Point Tracking (MPPT) techniques like Perturb and Observe (P & O), Incremental Conductance. MPP can be achieved by dynamically changing the duty ratio of boost converter. Thus, to obtain this Adaptive Neruro Fuzzy Inference System (ANFIS) is placed under different solar irradiation and temperature. Also, voltage variations are taken as input for comparison. The outcome showed the use of solar panels for power extraction using ANFIS based MPPT makes the tracking more effective and efficient.

Detection of Liver Cancer Using Marker Controlled Segmentation on MRI Images

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Abstract

The abnormal growth of cells in the liver causes liver cancer, which is also known as hepatic cancer. The hepatic cancer is known as Hepatocellular Carcinoma, which is the most common type of liver cancer that makes up 75% of cases. The detection of this tumour is difficult and mostly found at advanced stage, which causes life-threatening issues. Hence, it is far essential to discover the tumour at an early stage to administer the possible medical curative procedures. Keeping these aforesaid aspects in view, the prime intention of this research study is to detect the liver cancer at earlier stage using image processing technique. Moreover, by using this technique the malignant liver tumours are detected from Computed Tomography images. Furthermore, the image undergoes enhancement using anisotropic diffusion filters and segmented by morphological operations, which is simple and trivial to examine. This operation uses combination of two processes namely dilation and erosion. The scope of this propounded technique is to highlight the tumour region present in the computed tomography.

A Quantitative Assessment on the Cost Impact of Change Orders in Construction Projects

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Abstract

The change order is one of the main problems in construction industry, which results in cost and time overrun respectively. The various research studies have observed the contractors are prone to see most of the change orders in lieu with responsibility of the owners, while owners usually want to blame the contractors or third parties. Hence, there is a necessity to improve the present situation. Thus, to improve this situation, the identification, quantification and analysis of change order becomes quite indispensable. The fundamental aim of this research study is to identify the effects of change order on cost deviation in the construction projects with respect to cost overrun and to develop a model to evaluate cost escalation in construction projects. The scope of this study is limited to South India covering various types of construction projects like residential, commercial, infrastructural, and industrial projects. The study administered survey method using a structured questionnaire consisting the demographic profile, company details, project details and various factors related to causes and effects of change order. Subsequently, the reliability of the questionnaire was assessed after data collection. The responses obtained 288 projects are analysed statistically and results of descriptive analysis grouped the 34 factors under 6 cost escalation groups and regression analysis has been conducted to create a model for finding the probability of the cost escalation in construction projects. The research has concluded with appropriate suggestions and recommendations to control cost escalation in construction projects.

A Study of Additive Manufacturing Processes in the Field of MEMS Manufacturing

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Abstract

The recent success of additive manufacturing processes in the manufacturing sector has led to a shift in the focus from simple prototyping to real production-grade technology. Additive manufacturing is a relatively recent manufacturing method, which has become a key area of interest in multiple industrial sectors. The deriving from CAD models is a process that can be used to create solid yet highly complex parts and pushes towards a tool-less manufacturing environment for improved quality and better efficiency in many cases. The enhanced capabilities of Additive Manufacturing processes are to build intricate geometric shapes with high precision and resolution have led to their increased use in fabrication of Micro Electro Mechanical Systems (MEMS). The Additive Manufacturing technology has offered tremendous flexibility to users for fabricating custom-built components. It is important to note that over the past few decades, different types of Additive Manufacturing technologies have been developed. This paper provides a comprehensive review of recent developments and significant achievements in most widely used Additive Manufacturing technologies for MEMS fabrication, their working methodology, advantages, limitations, and potential applications. Furthermore, some of the emerging hybrid Additive Manufacturing technologies are discussed, and the current challenges associated with Additive Manufacturing processes are addressed. Finally, the future directions for process improvements in Additive Manufacturing techniques are presented.