

International Conference on Interdisciplinary Approaches in Education, Engineering & Social Transformation (ICIEEST – 2026)

22nd – 23rd May, 2026 | Shanghai, China

Organized by:



Norxin International Science and Technology Cooperation Base, China
IFERP Academy, India



International Conference on Interdisciplinary Approaches in Education, Engineering & Social Transformation (ICIEEST – 2026)

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Conference Theme



“Intelligent Futures: Interdisciplinary Pathways in Health, AI and Social Transformation.”

Preface

We cordially invite you to attend the International Conference on Interdisciplinary Approaches in Education, Engineering & Social Transformation (ICIEEST – 2026) on 22nd–23rd May, 2026. The main objective of ICIEEST-2026 is to provide a platform for researchers, students, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Interdisciplinary Approaches in Education, Engineering & Social Transformation. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in there view process, and to the authors for contributing their research result to the conference.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of ICIEEST-2026. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

About ICIEEST - 2026

The **International Conference on Interdisciplinary Approaches in Education, Engineering & Social Transformation (ICIEEST-2026)** is envisioned as a **global platform for knowledge integration, innovation, and societal impact**. With the theme "Intelligent Futures: Interdisciplinary Pathways in Health, AI and Social Transformation", ICIEEST 2026 emphasizes the synergy between health sciences and artificial intelligence, while showcasing how interdisciplinary research can drive sustainable progress in education, engineering and social transformation.

This conference brings together **academicians, researchers, industry leaders, policymakers and innovators** from across the globe to share insights, present cutting-edge research and co-create solutions that transcend disciplinary boundaries. By fostering dialogue across diverse fields, ICIEEST-2026 aims to bridge technology and humanity, ensuring that advances in AI and health sciences contribute meaningfully to education, engineering and societal well-being.

Vision & Purpose

To position ICIEEST as a landmark international forum where health sciences and AI converge with education, engineering and social transformation.

- Showcase multidisciplinary research with global relevance
- Promote cross-disciplinary collaboration for sustainability
- Generate policy frameworks for inclusive growth
- Empower young researchers with future-ready skills

Scope of the Conference

Integrating health sciences, AI and interdisciplinary research for sustainable futures:

- **Health Sciences & AI:** Digital health, AI-driven diagnostics and personalized medicine.
- **Education & Pedagogy:** Outcome-based learning, inclusive curricula and lifelong learning.
- **Engineering & Innovation:** Smart infrastructure, robotics and climate-resilient solutions.
- **Social Transformation:** Governance, ethics, equity and community empowerment.

The conference also provides opportunities for networking, industry-academia collaboration, and exploring global partnerships that promote innovation-driven growth.

Conference Objectives - ICIEEST 2026

The primary aim of ICIEEST 2026 is to advance environmental sustainability by promoting interdisciplinary thinking and collaborative action. The conference focuses on:

- **Fostering Interdisciplinary Collaboration:** Bridging the gap between education, engineering, and social sciences to develop practical, sustainable solutions.
- **Linking Research with Real-World Practice:** Turning academic knowledge into implementable strategies for communities, industries, and policymakers.
- **Promoting Innovation Aligned with the UN SDGs:** Highlighting novel ideas and scalable technologies that address the Sustainable Development Goals.
- **Empowering Emerging Leaders:** Providing a platform for students and early-career professionals to develop their knowledge, networks, and impact.

About IFERP

The IFERP Academy is a committed professional organization that advances engineering, science, and technology. IFERP anticipates a global scientific community brought together by digital innovation. This organization puts a great emphasis on promoting research activities, communicating the newest insights, and driving industrial trends.

IFERP has built strong networks throughout Asia, the Middle East, Europe, and countries such as Iraq, Malaysia, Australia, and more. They have incorporated networking, research support, publications, and worked in other scientific areas.

IFERP excels in organizing **International Conferences** that connect researchers worldwide. It holds important **international webinars**, publishes journals and publications that are indexed by Web of Science and SCOPUS, and provides thorough **research assistance and guidance**. Engaging in Youth Empowerment projects and encouraging Industry-Institute Interaction are key components of IFERP's goal. The organization is committed to enabling professionals through faculty advancement, skill development, and persistent research and publication initiatives.

- **Global Community Building:** IFERP exerts a lot of effort in building new communities all over the world. As community organizers, we control the conversations & inculcate passion for innovation amongst diverse groups.
- **Promoting Innovation Schemes:** IFERP has several schemes for students, professionals, researchers & organizations to being distinct innovators across all technology streams & sub disciplines.
- **Publicizing Research Publication:** Publication of research is the crucial aspect of IFERP's activities. IFERP also serves as a support center for early - career researchers aspiring to publish world-class research papers.
- **Our Origin:** Established by the Technoarete Research & Development Association (TRADA), IFERP was meant to serve as an accelerant for technological innovation worldwide.
- **Facilitating Multi-Disciplinary Collaborations:** IFERP encourages networking & collaborative partnerships on all fronts to result in a diverse collaborative atmosphere to gain abundance knowledge.
- **Access To Critical Funding & Resources:** IFERP has dedicated itself to fund for various efficient projects & activities to make it achieve successful outcomes beyond just meeting expectations.

What IFERP Does

IFERP is committed to improving the professional experience by providing a world-class platform to professionals. Their dedication extends to the following activities:

- **Academic Resource Accessibility :** They make academic resources and support available to aspiring scholars in both rural and urban locations.
- **Diverse Educational Program :** They organize a wide range of educational events such as workshops, conferences, webinars, seminars, guest lectures, short-term training programs, and faculty development programs.
- **Drive Innovation:** They work hard to foster curiosity and creativity, and stay up to date on the newest trends and advancements in the dynamic field of Engineering, Science, and Technology.
- **Knowledge Sharing and Collaboration:** They believe in the strength of the exchange of knowledge and actively collaborate with institutions, organizations, and associations to contribute to our shared objective of a better future.
- **Publication & Recognition:** They also provide opportunities for research articles to be published in reputable journals and actively promote and encourage transdisciplinary research activities.

IFERP Mission & Vision

IFERP's Mission: Upskilling the knowledge hub through technological innovation & excellence for the benefit of humanity.

IFERP's Vision: A Digitally equipped robust, dynamic & swift professional community integrating academics & industry for upgraded technical implementation.

IFERP's Value: IFERP values the restoration of high level technological research, learning, collaboration, resource sharing & community-building traditions.

IFERP's Goal: To serve as the foundation for all technological progress and advancement activities around the world.

Managing Director, IFERP



Mr. A. Siddh Kumar Chhajer

Managing Director & Founder, IFERP
Technoarete Group, India



Message:

On behalf of IFERP & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers.

The goal of the International Conference on Interdisciplinary Approaches in Education, Engineering & Social Transformation (ICIEEST – 2026) is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in various fields of academics. This conference creates solutions in different ways and to share innovative ideas in the field of Interdisciplinary Approaches in Education, Engineering & Social Transformation. ICIEEST-2026 provides a world class stage to the Researchers, Professionals, Scientists, Academicians, and students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

ICIEEST-2026 will explore the new horizons of innovations from distinguished researchers, scientists and eminent authors in academia and industry working for the advancements in Recent Challenges in Interdisciplinary Approaches in Education, Engineering & Social Transformation from all over the world. ICIEEST-2026 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in various fields of Academics.

Chief Executive Officer, IFERP



Mr. Rudra Bhanu Satpathy

Chief Executive Officer & Founder, IFERP
Technoarete Group, India



Message:

IFERP is hosting the International Conference on Interdisciplinary Approaches in Education, Engineering & Social Transformation (ICIEEST – 2026) this year in month of May. The main objective of ICIEEST-2026 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, Staffs, Professors, Reviewers and Members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.

Invited Keynote Speaker



Danielle Papillon-Richardson CSM

—
Founder
Black Opal Property Advisors Inc.
Canada



Message:

Danielle Papillon-Richardson, PRP, PDU, is a seasoned corporate educator, keynote speaker, and published author with over 20 years of experience in leadership facilitation, adult coaching, and corporate training. Fully bilingual in French and English, she has empowered over 6,500 professionals through customized training programs delivered across government, private, and academic sectors. Danielle has designed and facilitated high-impact workshops in software training, project management, technical writing, public speaking, and soft skills development. Her expertise includes program development, policy and procedure design, strategic consulting, and end-user documentation. Known for her engaging delivery and practical insights, she was invited to speak at the Université de Paris in 2017 on personal resilience and leadership. A graduate of Algonquin College in Business Administration and Retail Marketing, Danielle also studied Journalism at Carleton University, where she developed a strong foundation in communication and storytelling—skills that continue to shape her dynamic teaching style. She is the founder of Black Opal Property Advisory's education division, where she leads initiatives in customized corporate needs, leadership training, and professional development. Her workshops are trusted by Fortune 500 companies, government agencies, post-secondary institutions, and industry leaders. Danielle's published work includes:

- Funny/Not Funny! Humanity's Risk Register (2025, upcoming)
- Tough Resiliency, Smart Agility
- Vertical Villages: The Magic of Mixed-Use Development
- Negotiate Your Adversary into Your Ally — With a unique blend of strategy, empathy, and humour, Danielle continues to inspire growth and transformation in every audience she serves.

Invited Keynote Speaker



Prof. Phillip J. Richardson CD, CRRP, CSM

International Entrepreneurship
Canadore College CEO
Black Opal Property Advisors Inc.
Canada



Message:

Professor Phillip Richardson is a distinguished educator, keynote speaker, and co-author with over four decades of global experience in leadership development, international entrepreneurship, and mixed-use innovation. As a Professor, International Entrepreneurship at Canadore College for fourteen years and visiting Professor at Shenzhen University, Professor Phillip is dedicated to empowering the next generation of business leaders through engaging instruction, mentorship, and applied global insights. Professor Phillip is a sought-after international speaker and presenter, having delivered keynote addresses and academic papers on global development, neuroscience in design, and resilience leadership—including at the Université de Paris International Conference on Global Innovation in Architecture and Engineering. A prolific writer, Professor Phillip has co-authored multiple influential publications, including:

- Winning On and Off the Track: Ferrari's Business Model
- Design Plasticity – a groundbreaking paper linking neuroscience and design thinking
- Vertical Villages: The Magic of Mixed-Use Developments inspired by his leading
- some of the world's most important projects.
- Tough Resiliency, Smart Agility (2024) for individuals and companies
- Funny/Not Funny! Humanity's Risk Register (2025, upcoming) to help meet our species existential challenges with practical solutions understandable to the average reader Professor Phillip's work bridges theory and practice, from classroom to boardroom, across continents. Through speaking engagements and educational initiatives, he continues to inspire innovation, ethical leadership, and global collaboration.

Invited Keynote Speaker



Prof. Dr. Luo Laijun

Professor of Economics
Renmin University of China
Executive Dean of the Institute of China
and World Humanistic Economics
China



Message:

Prof. Luo Laijun is a Professor of Economics and Doctoral Supervisor at Renmin University of China, and Executive Dean of the Institute of China and World Humanistic Economics at the International (Macau) Academy of Sciences. He holds a Bachelor's and Master's degree in Economics from Peking University and a Ph.D. in Management from Fudan University. Appointed by the Central Organization Department of the CPC and the Ministry of Education, he served as Deputy Director of the Policy Research Office of the Hainan Provincial Committee, earning consecutive "Excellent" evaluations. Prof. Luo has published over 300 academic papers in leading international and Chinese journals, including World Economy, Economic Research, and Management World, and authored policy reports cited or adopted by national and provincial leaders over 80 times. He is the founder of Actual Effect Economics (AEE), recognized by scholars as "the Ninth Economics Revolution," offering groundbreaking theoretical and practical innovations that have drawn international recognition and application across countries and academic communities.

Invited Keynote Speaker



Dr. Zhao Qiuyun

Director
Department of Development Cooperation
Research Associate Professor
Institute for Global Health and
Development
Peking University, China



Message:

Zhao Qiuyun currently serves as Director of the Development Cooperation Department and Associate Researcher at the Institute for Global Health and Development, Peking University. He earned his PhD in Economics from the Guanghua School of Management, Peking University, in 2017, followed by postdoctoral research at the National School of Development, Peking University (2017–2019). He previously worked at Institute of New Structural Economics, where he held the positions of Deputy Director of the Enterprise Development Department (2019–2021), Director of the Domestic Development Cooperation Department (2021–2023), and Director of the Social Training Department (2023–2024). His research focuses on income distribution, interdisciplinary studies of heatwaves, health and the economic development, and planetary health economics. He has published over 60 papers in leading national and international journals, including Energy Economics, Annals of Regional Science, Finance Research Letters, Economic Change and Restructuring, and Journal of Financial Research. He has received more than 30 national and international honors, such as the First Prize of the National Economics Postdoctoral Academic Forum, Tan Chongtai Development Economics Scholarship, Second Prize of the Shanghai Young Economists Forum, and Excellence in Innovation at the International Research Awards on Accounting and Financial Management. In recent years, he has led major projects funded by the National Social Science Foundation of China (including both major and general projects), a First-Class Funding Project of the China Postdoctoral Science Foundation, and multiple think-tank initiatives for national and local governments. His research outcomes have been repeatedly endorsed by central and provincial-level leaders, highlighting their policy impact.

Keynote Speaker



Prof. Dr. Raman Kumar

Director-Research and Incubation
Rayat Bahra University
India



Message:

Prof. Raman Kumar is a distinguished academic and researcher in Mechanical Engineering, currently serving as Director – Research and Incubation at Rayat Bahra University since March 2024. With over 15 years of teaching, research, and administrative experience, he has held key positions at Chandigarh University, including Associate Dean (Research) and Assistant Dean (Research). He earned his Ph.D. in Mechanical Engineering from IKG Punjab Technical University (2018), M.E. in Production Engineering from GNDEC/PTU (2011), and B.Tech. in Mechanical Engineering from Kurukshetra University (2007). Prof. Kumar has an exceptional research portfolio with 270+ SCOPUS-indexed publications, 25 conference papers, 9 books/book chapters, and an h-index of 30. He has filed over 30 patents, of which 11 are granted, and has registered 2 copyrights. His research spans additive manufacturing, industrial engineering, and sustainable manufacturing.

Keynote Speaker



Dr. Muhammad Waseem Bari

Associate Professor
Deputy Director Quality Enhancement
Cell (QEC)
Lyalpur Business School
Government College University Faisalabad
Pakistan



Message:

Dr. Muhammad Waseem Bari is an Associate Professor and Deputy Director Quality Enhancement Cell (QEC) at Lyallpur Business School, Government College University, Faisalabad, Pakistan. He holds a Doctorate in Business Administration with a specialization in Human Resource Management from the Beijing Institute of Technology, China. With over 15 years of experience as an educator, consultant, and corporate trainer, Dr. Bari has authored more than 50 peer-reviewed articles spanning SAGE Open, Frontiers in Psychology, and other SSCI-indexed journals and maintains an active Google Scholar profile. He has edited eleven scholarly volumes, including Impact of Infodemic on Organizational Performance (IGI Global, 2021) and Handbook of Talent Management and Learning Organizations: A Post-Pandemic Perspective (Taylor & Francis, 2024). Dr. Bari serves as Guest Editor for Frontiers Publishers and Article Editor for SAGE Publications, and regularly reviews for leading SSCI journals. In industry, he has consulted for banking and FMCG firms, designing and delivering corporate training on knowledge management, psychological contracts, innovation, and organizational change. His current research interests focus on leveraging AI-enhanced methodologies, such as SmartPLS4 for robust structural equation modeling, as well as exploring the nexus of tourism, employee resiliency, and strategic HRM in dynamic organizational contexts. Dr. Bari's commitment to bridging theory and practice has made him a sought-after speaker at international conferences and workshops across Europe and Asia, where he demonstrates how cutting-edge tools can accelerate the journey from novel ideas to high-impact publications.

Keynote Speaker



Dr. Eng. Bayu Indrawan

—
Founder
Center of Waste Management Indonesia
Director
Science Techno Park
University of Jambi, Indonesia

Message:

As an Indonesian citizen, Bayu Indrawan has been working intensively in the energy and environment sectors since 2003. He has been invited to chair several international events, workshops, and sessions, as well as deliver keynote speeches and invited lectures at numerous international conferences. Additionally, he has been invited to attend several prestigious professional international programs, such as the International Visitor Leadership Program (IVLP) in 2014 by the U.S. Department of State. As one of the youngest doctoral graduates from Indonesia, Bayu Indrawan received a Doctoral Degree (Dr. Eng.) in Environmental Science and Technology from the Tokyo Institute of Technology, Japan. His focus was on waste-to-energy technology, supported by the Ministry of Education, Culture, Sports, Science, and Technology of Japan with fully funded scholarships. He also holds double bachelor's degrees in Electrical Engineering from the University of Sriwijaya, and Economics from the University of IBA. Additionally, he earned a master's degree in Electrical Engineering from the University of Indonesia with a minor in renewable energy. He is the founder and director of the Center of Waste Management Indonesia, the first of its kind research center in Indonesia. The center aims to serve the community and all stakeholders by helping the environment become greener and cleaner through research, development, and implementation of an integrated and sustainable waste management system based on technology. Bayu Indrawan has also served as a lecturer at the University of Indonesia, University of Jambi and Nusa Putra University. Additionally, he has led several companies in the energy, environment, and technology sectors. He is the technology innovator behind the first commercial-scale integrated municipal solid waste treatment technology implementation in Indonesia, using hydrothermal waste treatment technology, located in Tangerang. Additionally, he has developed and implemented pilot and commercial-scale plastic waste to oil by pyrolysis technology in Indonesia. Bayu Indrawan was awarded the **INDONESIAN INSPIRATIVE TALENT** in the field of Science and Technology by Majalah Intisari, Kompas Gramedia Group in 2018 for his achievements as a pioneer in hydrothermal waste treatment technology.

Keynote Speaker



Dr. Hayat Ullah

Associate Professor (AdvanceHE, UK)
 Visiting Faculty
 Department of Chemistry
 University of Okara, Pakistan



Message:

Dr. Hayat Ullah is an eminent organic chemist and an Associate Fellow of Advance HE (UK) serving as Assistant Professor in the Department of Chemistry at the University of Okara, Pakistan. Through the years, Dr. Ullah has built a strong track record of an academic and research profile, and made a major contribution in the area of synthetic organic chemistry, drug discovery, nano-materials and molecule design of bioactive compounds. His cross-functional research lies at the interface between synthetic chemistry and nanotechnology, in the design of novel nano-based derivatives with superior bio efficacy. Dr. Ullah has authored 10 book chapters, one edited book and 162 research articles published in high-ranking journals. Cumulatively, his work has been cited more than 3990 times with impact factor of 500 having a healthy h-index of 39 and i10- index of 90. His newer work includes mentoring graduate research in nanomaterials synthesis and advanced organic frameworks aimed at antimicrobial and anticancer applications at the University of Okara, Pakistan. His contemporary work is the trailblazer in the field of heterocyclic chemistry and functionalized nanoparticles, thereby contributing to the Pakistani scientific elite and a worthy partner in international academic circles.

Keynote Speaker



Prof. Dr. Jiang Xingda

Dean

Department of Styling Arts
Hebei Academy of Fine Arts, China



Message:

Prof . Dr. Jiang Xingda, the dean of the School of Fine Arts at Hebei Institute of Fine Arts, focuses his research on Chinese painting creation and theoretical studies, the integration of folk art and Chinese painting, and the inheritance and innovation of traditional painting techniques. In recent years, he has led and participated in more than ten key projects, including the national key project of the Ministry of Education's "14th Five-Year Plan" for educational research, theoretical research projects of the Hebei Federation of Literary and Art Circles, humanistic social science research projects of the Hebei Department of Education, and the "14th Five-Year Plan" research projects of Hebei Education Science. More than ten of his academic papers have been published in authoritative newspapers such as Guangming Daily and core Chinese journals such as Science and Technology and Publishing, and Art Work. His artworks have been selected for the 14th National Art Exhibition and the first and second Chinese Freehand Painting Exhibitions.

Session Speaker



Prof. Dr. Sobur Ahmed

Department of Leather Engineering
Institute of Leather Engineering and
Technology
University of Dhaka, Bangladesh



Message:

Professor Dr. Sobur Ahmed is a distinguished academic and researcher in the field of Leather, Footwear, and Leather Products Engineering. He currently serves as Professor at the Institute of Leather Engineering and Technology (ILET), University of Dhaka, where he also contributes as a member of the Coordination & Development and Academic Committees. Over his career, he has played a key role in curriculum development, quality enhancement of academic programs, and technical standardization through his involvement with ISO and BSTI. Dr. Ahmed earned his PhD in Applied Chemistry and Chemical Engineering from the University of Dhaka (2023), an MSc in Footwear Technology and Management from FDDI, India (2003), and a BSc in Leather Technology from the University of Dhaka (1996). Prior to his current position, he held roles as Associate and Assistant Professor at ILET, Warden of Dr. Quadrat-E-Khuda Hostel, and Principal (In-Charge) of Bangladesh College of Leather Engineering and Technology. He also gained industry experience as a Leather Technologist at Apex Tannery Limited. A prolific researcher, Dr. Ahmed has published extensively in international journals, authored books, and presented at global conferences. He has also served as consultant and advisor on national and international projects, contributing to sustainable leather technology, environmental solutions, and skilled workforce development.

Session Speaker



Prof. Dr. Sevenpri Candra

Deputy Campus Director
Academic & Student Development
Department of Business Management
Bina Nusantara University, Indonesia

Message:

Sevenpri Candra is a professor of Management at BINUS University and this time serves as Deputy Campus Director for Academic & Student Development at BINUS @Bekasi. He serves as a facilitator, professional, judge, and coach for various business sectors, ranging from enterprises to SMEs. Prior to joining BINUS, He had a professional career in Consulting and Information Technology. His research interest area is Digital Business Management and Sustainability. He also serves as a reviewer for several prominent journals and conferences.

Session Speaker



Prof. Dr. J. Venkateswara Rao

Lakireddy Bali Reddy
College of Engineering (LBRCE)
India



Message:

Dr. J. Venkateswara Rao is a Professor of Civil Engineering, specializing in Structural Engineering, with over 18 years of teaching and research experience. He holds a B.Tech in Civil Engineering from Acharya Nagarjuna University, an M.Tech in Structural Engineering from the Indian Institute of Technology (IIT) Delhi, and a Ph.D. in Civil/Structural Engineering from Andhra University, Visakhapatnam. Currently serving as Professor at Lakireddy Bali Reddy College of Engineering (Autonomous), Mylavaram, he has also held positions as Head of Department and senior faculty at both Lakireddy Bali Reddy College of Engineering and GMR Institute of Technology, Rajam. His primary research interests include geopolymer concrete, high-strength self-compacting concrete, special concretes, paver block technology, and environmental sustainability. Dr. Rao has published 32 research papers in reputed journals and 9 in conference proceedings. He has successfully guided 18 undergraduate and 9 postgraduate projects. He is a Life Member of the Indian Society for Technical Education and a Fellow of the Institution of Engineers. Recognized for his academic contributions, he has received several Best Teacher Awards and was awarded a Gold Medal for his performance in GATE with an All India Rank of 68.

Session Speaker



Asst. Prof. Dr. Muhammad Nadir Shabbir

Xi'an University of Finance and
Economics
China



Message:

Dr. Muhammad Nadir Shabbir is Assistant Professor of Economics at the School of Finance and Economics, Xi'an University of Finance and Economics, Xi'an, China. He holds a Ph.D. in International Trade and Economics from the School of International Trade and Economics, Central University of Finance and Economics (CUFE), Beijing, earned under the Chinese Government CSC Scholarship (2019-2023), preceded by an M.Phil. in Econometrics from the Pakistan Institute of Development Economics. His research interests span international trade policy, innovation, sustainable development, climate change, green GDP, and governance. Dr. Shabbir has published in leading journals such as RIBAF, Sustainability, Research in Economics, PLOS ONE, Risk Management and Journal of Applied Economics. He has also contributed chapters to volumes including Geo-Economics in South Asian Environment and forthcoming work on industrial impacts on climate change. His recent studies investigate trade policy uncertainty, green innovation, ESG disclosure, financial crises, and the interplay between institutional quality and technological diffusion across developed and emerging economies.

Session Speaker



Assoc. Prof. Du Chen

Deputy Dean
School of Plastic Arts
Hebei Academy of Fine Arts
China



Message:

Prof . Du Chen, Deputy Dean of the School of Plastic Arts at Hebei Academy of Fine Arts, focuses his research on traditional mural iconography, field investigations of folk murals, rock- color materials and techniques, as well as the digital preservation and revitalization mechanisms of cultural heritage. In recent years, he has led or participated in more than ten funded research projects, including those supported by the National Arts Fund of China, the Hebei Provincial Social Science Foundation, and cultural and tourism research programs. His work centers on the systematic survey of Ming-Qing murals in Yu County, the development of digital preservation methodologies, and the cultural interpretation and contemporary transformation of folk iconographic language. Several projects have been rated as excellent upon completion. His academic papers have been published in journals such as Art Literature, Gallery, and Ingenuity, and he is the chief editor of Drawing from Tradition, Creating Anew. His artworks have been selected for major national exhibitions, including the National Mural Exhibition and the China Artists Association's Second Mural Exhibition, among other significant professional showcases.

Session Speaker



Dr. Li Jie



Lecturer

School of Computer Science
Taylor's University, Malaysia



Message:

Dr. Li Jie received his PhD in the school of computer science from Taylor's University. He has participated in many research projects and academic conferences with high-impact publications (Sci and Scopus) in the recent 5 years. He also participated in the Smart City projects in China from 2011 to 2019. His research domain is AI-based computer vision, including histopathological image processing and imaging, co-creator of painting restoring and pattern recognition, and multi-modality modeling and algorithm development. He is the editorial member in Bentham Science and alumni advisory board member in Taylor's University.

Session Chairs



Dr. Muhammad Nadir Shabbir

Associate Professor
Xi'an University of Finance and
Economics
China



Megha. H. R

Assistant Professor
Faculty of Education
S. E. A. College, Bangalore, India



Moderators



Kruthika Bai K M

—
Student
S. E. A College
Bangalore, India



Harshitha N

—
Student
S. E. A College
Bangalore, India



Conference Convenor



Prof. Dr. G. P. Ramesh

Conference Convenor
India



Biography:

Dr. G. P. Ramesh is a distinguished academician, visionary technologist and ambitious researcher with over 26 years of multifaceted experience spanning higher education, advanced research and industry leadership. His career reflects a seamless integration of academic excellence and technological innovation, positioning him as a transformative force in engineering education and applied research. A dynamic leader and passionate educator, Dr.G.P.Ramesh has served as Professor and Head of Electronics and Communication Engineering at prestigious institutions across India and abroad. He has mentored undergraduate, postgraduate and doctoral scholars, successfully guiding Twenty-Two Ph.D. candidates and nurturing a culture of inquiry and excellence. His academic expertise encompasses artificial intelligence, machine learning, embedded systems, VLSI design and antenna technologies. With more than 125 publications in Scopus-indexed journals, his scholarly influence is evidenced by an H-index of 32 and an i10-index of 70, marking him as a prominent contributor to global research discourse. He has also organized Twelve International and Six National conferences, publishing proceedings with Springer and ensuring global visibility through Scopus and Web of Science. A pioneer in Outcome-Based Education and a strategic advisor for NAAC, NBA and Autonomous frameworks, Dr.G.P.Ramesh continues to shape future-ready engineers and scalable, tech-driven solutions for India and beyond.

Committee Members

Organizing Committee Members

Conference Chair

Prof. Dr. Luo Laijun

Executive Dean
Department of Economics
Institute of China and World Humanistic Economics, China

Conference Co-Chair

Dr. Muhammad Waseem Bari

Deputy Director
Business Management
Government College University, Faisalabad, Pakistan

Organizing Secretary

Dr. Gang Guo

Chief Director
Research and Development
Norxin International Science and Technology Cooperation Base
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Senior Technical Support Engineer
Department of Electrical & Electronics Information Engineering
Nianpeng Machinery, China

Dr. Hayat Ullah

Associate Professor
Department of Chemistry, University of Okara, Pakistan

Dr. Li Jie

Director, Software Development Supervisor
Department of Computer Science
Meta Solution Ltd. Co., China

Nadeem Aljonaïd

Associate Professor
Faculty of Economics, Shandong University, China

Dr. Hani Amir Aouissi

Senior Researcher
Environmental Research Center, Algeria

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Dr. Muhammad Nadir Shabbir

Assistant Professor
Department of Economics
Xi'an University of Finance and Economics, China

Dr. Kebaili Feriel Kheira

Senior Researcher
Environmental Research Center (CRE), Algeria

National Advisory Committee Members

Kamran Farooqi

Senior Researcher (Doctoral)
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An Agent-Centric Framework for Engineering Productivity Insights Using LangGraph and Large Language Models

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Abstract

Through the utilization of version control systems (VCS), pull requests, and CI/CD Automation, Modern Software Engineering teams produce large volumes of development telemetry (commonly referred to as “Data”) from many sources in GitHub and other repository hosting platforms. While this data can be used to compute various measures or “Metrics” of Engineering Productivity, converting that Raw Data into Actionable Insights presents many challenges for Data Analysts. The focus of this paper is to develop an agent-centric Framework that integrates Deterministic Software Analytics (DSA) with Large Language Models (LLM) in order to produce interpretable Engineering Productivity Insights. Using LangGraph as an orchestration tool, the framework consists of 3 distinct workflows with specialized Agents: A Data Harvester Agent responsible for collecting Raw Data from GitHub-based repositories; A Diff Analyst Agent responsible for analyzing and creating reports based on the diff provided by the Data Harvester; and an Insight Narrator Agent that utilizes Language Model capabilities to provide Insight Narratives or “Insights” based on the previous report. Each Agent is capable of creating Structured Reports that align with the metrics developed by the DORA team.

Results of experiments conducted on public-facing repositories demonstrate that the Framework is capable of maintaining Consistency, Transparency, Reproducibility, and a Low Hallucination Rate, while in parallel identifying and capturing significant Development Trends over time.

Keywords

Engineering Productivity, LangGraph, Large Language Models, Code Churn, DORA Metrics, Multi-Agent Systems.

Reversal of Drug Resistance in Breast Cancer Cells by Photodynamic Action Mediated by Curcumin/Ko143/PLGA Nanoparticles

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Abstract

Objective: The objective of this study is to prepare Cur/Ko143/PLGA that encapsulate the photosensitizer curcumin (Cur) and the multidrug transporter-specific inhibitor Ko143 to investigate its application in reversing drug resistance in breast cancer and evaluate its properties and therapeutic efficacy.

Results: After successful preparation of nanoparticles, the encapsulation rate of Cur/Ko143/PLGA was $73.8\% \pm 1.8\%$, and the drug loading rate was $2.8\% \pm 0.1\%$. The Cur/Ko143/PLGA were spherical and regular in morphology under transmission electron microscopy. The nanoparticles were morphologically intact, were uniform in size, and did not show significant aggregation under scanning electron microscopy. The average particle size of Cur/Ko143/PLGA was 232.32 ± 10.60 nm, the polymer dispersion index was 0.01, and the zeta potential was -17.25 ± 0.65 mV, as determined by laser particle sizing. In vitro ultrasound observation showed that Cur/Ko143/PLGA were enhanced in both the B-mode and contrast modes. Intracellular Cur fluorescence detection, biocompatibility testing, cell scratch experiment, flow detection of apoptosis, live-dead staining, and actin polymerization test all prove that new nanomaterials have better photo dynamic efficacy.

Conclusion: Drug-carrying Cur/Ko143/PLGA nanoparticles can increase the concentration of the intracellular photosensitizer Cur and increase the photodynamic efficacy by inhibiting an efflux pump, which is expected to become a new therapeutic strategy.

Keywords

Photodynamic therapy, Breast cancer, Multidrug resistance, PLGA nanoparticles, Curcumin, Ko143, Drug delivery, BCRP inhibition.

Individual Economic Sustainability among Absolute Urban Poverty Communities: Obstacles and Initiatives for Intervention

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Abstract

Urban poverty is influenced by several factors, including rural-urban migration, unemployment, low educational attainment, and high living expenses. The absolute urban poor communities was found to have difficulty achieving individual economic sustainability due to low household income. In this study, "individual economic sustainability" refers to a person's ability to maintain long-term financial security and consistently earn sufficient income. The implementation of the New Economic Policy (NEP) and economic growth have helped Malaysia drastically lower its overall poverty rates. The NEP is an effort to develop communities for a prosperous and productive society, speeds up regional development, and raises the economic potential of the urban poor. However, more focus and action are needed to address the problems faced by the absolute urban poor. To comprehend the obstacles and actions made by the absolute urban poor in attaining economic sustainability, this study was carried out. A leader at the People's Housing Program (PPR) in the central region area of Malaysia and members of the absolute urban community participated in semi-structured interviews. The interview results indicated that the communities faced three primary challenges: high living expenses, a lack of employment prospects, and social or criminal problems. To lessen the difficulties, some interventions have been implemented, including dual employment, entrepreneurship, efficient saving and financial management, child monitoring and control, and strong cooperation between communities, local authorities, the government, and non-governmental organizations (NGO). The results acknowledge the need for all external stakeholders to develop best practices to assist urban impoverished populations in reaching individual economic sustainability and breaking free from the cycle of poverty.

Keywords

Urban Poor, Economic, Sustainability, Challenges, Intervention.

Blockchain Based Security in Healthcare Application

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Abstract

Digital technology is spreading rapidly in the healthcare sector to improve patient care outcomes. Cloud computing, Electronic Health Records (EHRs), and the Internet of Medical Things (IoMT) have improved healthcare's performance and have enabled rapid access to patient data in real-time. For this reason, many opportunities to support care giving professions are emerging. However, such technology also poses problems and risks of various kinds when vast amounts of personal and sensitive medical information are flowing through networks and into the cloud. Blockchain technology consists of a distributed data and transaction record stored across a network of computers that is difficult to alter or hack because of cryptographic hashing, consensus-based protocols, and smart contracts. All of these features combined provide intrinsic protections for highly sensitive medical information, including complete transfer of control away from central data administrators. In this paper, applications of blockchain technology for healthcare security and related issues are studied in depth. Specifically, a key feature of distributed ledgers is their ability to securely facilitate the safe exchange of information. They are furthermore being increasingly applied in order to provide a heightened level of traceability in pharmaceutical supply chains and authenticity to the rising number of IoMT devices that cannot be certified in a paper-based manner. Examples of both current state-of-the-art applications and ongoing research and development are explored in depth. The paper particularly notes several very relevant, albeit somewhat more general limitations that affect blockchain implementations in healthcare settings. Solutions and areas for further development of integration with existing health system infrastructures are elaborated. The paper concludes that decentralized blockchains will play a pivotal role in bringing security, interoperability, and a patient-centric model to the diverse mosaic of healthcare systems worldwide, effectively addressing a host of security-related challenges and fostering the development of transparent, trustworthy systems for managing medical data. Blockchain for Healthcare Security: Challenges, Opportunities, Solutions - Internet of Medical Things (IoMT), Electronic Health Records (EHR), Smart Contracts, Data Privacy.

Evaluation of the Technical Training Program for Industrial Energy Managers: A Kirkpatrick's Four-Level Approach

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Abstract

This study evaluates the effectiveness of the Technical Education and Training Program for Industrial Energy Managers organized by the Center for Human Resource Development in Electricity, New, Renewable Energy, and Energy Conservation (PPSDM KEBTKE). Motivated by the urgent need for behavioral change in industrial energy management to support national greenhouse gas emission reduction targets, this research employs a mixed-methods sequential explanatory design. The Kirkpatrick Evaluation Model—encompassing Reaction, Learning, Behavior, and Results—was utilized as the evaluation framework. Data were collected from 75 participants from PT. Pertamina (Persero) and its subsidiaries through questionnaires, pre-tests, post-tests, observations, and interviews. The findings indicate positive achievements across all levels: high satisfaction rates (>84%) at the Reaction level, significant knowledge improvement at the Learning level, successful application of energy management skills at the Behavior level, and tangible organizational improvements based on ISO 50001 standards at the Results level. The study concludes that the training is highly effective but recommends curriculum refinements focusing on practical baseline establishment and granting greater financial authority to energy managers.

Keywords

Mixed methods, effectiveness, behavioral change, energy management, Kirkpatrick.

Design and Simulation of a Hybrid Solar-Grid Wireless Opportunity Charging Prototype for Urban Electric Buses

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Abstract

The concept of wireless opportunity charging has recently been discussed as a promising solution that should be implemented to serve intensive-use city electric buses. Other than overnight depot charging, it is possible to provide buses with small portions of energy when they make brief halts at bus stops. The current paper describes the design and simulation of a hybrid solar-grid wireless opportunity charging prototype. The architecture proposed consists of photovoltaic generation, conversion of grid power, battery interface, inductively coupled coils and high-frequency inverter. The wireless power transmission can be used to allow the transfer of energy between the ground charging pad and the coil attached to the vehicle without physical contact. To test the performance of the proposed system, a MATLAB/Simulink prototype was developed. The simulator examines power flow coordination across solar generation and grid supply, controller operation and resonant inductive power transfer characteristics. It has been shown that results exhibit stable system operation with efficient wireless power transfer, which can be used as an opportunity charging mechanism in urban electric bus networks.

Keywords

Wireless Power Transfer, Electric Buses, Opportunity Charging, Solar Energy Integration, Hybrid Charging Systems, Inductive Charging.

Detecting Forged Images Using Neural Networks and Noise Residuals

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Abstract

The rapid advancement of image editing software and social media platforms has significantly increased the spread of manipulated digital images, creating major concerns regarding authenticity and trust. This paper presents an efficient approach for detecting forged images using Neural Networks and Noise Residual analysis. The proposed method combines deep learning-based feature extraction with forensic noise pattern analysis to identify hidden traces of tampering that are not visible to the human eye. Initially, noise residual maps are extracted from input images to capture inconsistencies caused by editing operations, and these features are provided to a Convolutional Neural Network (CNN) for classification of authentic and forged images. The model is capable of detecting common forgery types such as copy-move, splicing, and retouching with improved accuracy and robustness. Experimental results show that integrating noise residual information with neural networks enhances detection performance compared to traditional methods. The proposed framework provides a reliable solution for digital image authentication in forensic investigations, social media verification, and cybersecurity applications.

Keywords

Image forgery detection, error level analysis, convolutional neural networks, noise residuals.

The Effect of Information and Communication Technology Use on Academic Achievement: A Case Study in Vietnamese Higher Education

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Abstract

Purpose: This study aims to investigate the varied influence of 5 different types of information and communication technology (ICT) use on academic achievement: social interactions, leisure and entertainment, information and consultation, business transactions, and learning and skill upgrading.

Design/Methodology/Approach: Data was collected from approximately 1,200 students enrolled at the Ho Chi Minh City Open University (HCMCOU), Vietnam through a questionnaire in 2025. Collected data was analyzed via coarsened exact matching (CEM) to control selection bias and causal mediation analysis (CMA) models to verify the indirect mechanisms through which ICT use influences academic achievement.

Findings: It is anticipated that different forms of ICT use will exhibit differential effects on academic achievement including positive and negative. Moreover, ICT's influence is expected to operate indirectly through psychological factors—represented by self-efficacy and technostress—and social factors, represented by social support.

Research limitations: This study is limited to the ICT use for on-campus undergraduates at HCMCOU. Therefore, the findings may not be generalizable to all kinds of students at HCMCOU which includes post-graduates, distance learning, etc. or to other universities in Vietnam as well as in Asia.

Value: Against the broader field of education in the world, it will contribute to the body of knowledge about ICT use with nuanced insights in the specific context of higher education in Vietnam, a developing country in Asia.

Keywords

ICT use, academic achievement, CEM, CMA, higher education, Vietnam.

Developing Desirable Characteristics of Construction Project Managers based on the Philosophy of Sufficiency

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Abstract

The Thai construction industry faces significant challenges, including material price volatility, financial liquidity crises, and safety risks, making the project manager the most critical variable in determining organizational sustainability. This research aims to develop a model of desirable characteristics for construction project managers by integrating the Sufficiency Economy Philosophy (SEP) with management competencies to address these complexities. Using a 5-point Likert Scale questionnaire, 18 identified characteristics were categorized into the five dimensions of SEP: Moderation, Reasonableness, Self-immunity, Knowledge, and Virtue. The model was validated through Confirmatory Factor Analysis (CFA), which demonstrated an excellent fit with empirical data (CFI = 0.981, TLI = 0.978, and RMSEA = 0.023). Second-order CFA results reveal that "Knowledge" is the most critical driver for a sufficiency-based project manager ($\beta = 0.806$), followed by "Moderation" ($\beta = 0.730$), highlighting the importance of professional expertise and resource optimization. The findings conclude that these five dimensions are holistically integrated and provide a measurable, empirical framework for developing resilient and ethical leaders in the construction sector.

Keywords

Desirable characteristics, Construction project managers, Sufficiency economy philosophy, Confirmatory factor analysis, SEP.

A Review on Integrated Pest Management System

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Abstract

In domestic and agricultural environments, pest management remains a major issue that continues— particularly when conventional chemical-based remedies trigger serious issues. This research explores the possibility of solar-powered integrated pest management (IPM) systems that incorporate advanced detection and deterrent technologies. These systems are powered by renewable energy and draw on the use of an integrated array of tools: motion detection sensors to detect reptiles, UV-LED emitters to lure nocturnal insects, and sound emitters that can be programmed to deter other pests. The primary benefit of this method is its compatibility with IoT-based monitoring, which enables real-time automation and control. Not only does this increase efficiency, but it also minimizes the application of chemical pesticides by an enormous amount. Some of the most important technical features that make these systems scalable and efficient include automated pest collection systems, intelligent connectivity features, and a 12V DC power system. The systems incorporate features of a range of advanced technologies—such as infrared motion sensors to detect reptiles, UV lights to lure insects, and sound-based deterrents—to create an integrated and adaptive pest control system. With solar photovoltaic power and battery backup, the off-grid systems are specifically designed to be suitable for a range of environments, from isolated farms and suburban neighborhoods. Smart connectivity monitoring is highly critical because it allows for real-time feedback and increases the flexibility of operations. This paper discusses the overall design, most critical technical developments, and practical deployment approaches for solar-powered IPM systems. It also measures their efficacy in pest control without compromising environmental safety. Ultimately, the aim is to emphasize the increasing relevance of intelligent, green- friendly pest management solutions— demonstrating the potential of solar-powered IPM to transform the future of sustainable agriculture and domestic care.

Keywords

Integrated Pest Management (IPM), solar power, IoT, motion sensors, UV-LED arrays, sound emission systems, sustainability, agricultural technology, green pest control, renewable power.

AI-Powered Socio-Economic Data Insight & Prediction System

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Abstract

Effective policy-making and resource allocation require comprehensive analysis of socio-economic indicators such as unemployment rates, literacy levels, poverty indices, and healthcare accessibility. However, governments and non-governmental organizations often struggle to extract actionable insights from vast, heterogeneous datasets that span multiple dimensions, temporal periods, and geographic regions. This paper presents an AI-powered system designed to automate the collection, analysis, visualization, and prediction of socio-economic trends across diverse populations and contexts. The proposed system integrates data from multiple authoritative public sources including the World Bank Development Indicators, World Health Organization Global Health Observatory, United Nations Development Programme databases, and national census repositories. Using advanced machine learning algorithms including time-series forecasting with Facebook Prophet, Random Forest classification models, and k-means clustering techniques, the system identifies complex regional patterns, predicts future socio-economic trends with quantified uncertainty, and generates automated comprehensive reports for decision-makers and policymakers. The implementation leverages industry-standard Python-based data science libraries including Pandas for data manipulation, NumPy for numerical computing, Scikit-learn for machine learning, and Matplotlib and Seaborn for statistical visualization, along with interactive dashboard platforms such as Streamlit for web-based interfaces and Power BI for enterprise reporting. Extensive experimental validation using real-world datasets demonstrates prediction accuracies exceeding 87% for unemployment rate forecasting and 92% for literacy trend analysis across multiple countries and regions. The system successfully segments geographic regions into six distinct socio-economic clusters based on multidimensional indicator profiles, enabling targeted intervention strategies and comparative policy analysis. This comprehensive solution provides a scalable, automated, and extensible framework for evidence-based policy planning, welfare scheme optimization, and development program evaluation, addressing critical challenges in contemporary data-driven governance and international development cooperation.

Keywords

Socio-economic analysis, Machine learning, Data visualization, Predictive analytics, Time-series forecasting, Prophet algorithm, Policy support systems, Regional clustering, Automated reporting, Development indicators, Evidence-based governance, Random Forest classification.

GAN Based Approach for Latent Fingerprint Reconstruction

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Abstract

Fingerprints play an important role in forensic investigations. When it comes to latent fingerprints it is crucial to focus on its reconstruction and enhancement. In this paper we have proposed deep learning based fingerprint reconstruction framework using Generative Adversarial Network which is built on modified U Net++ architecture for restoring the degraded fingerprint images. The proposed method employed a preprocessing pipeline consisting of grayscale conversion, normalization, CLAHE based contrast enhancement and resizing to 256×256 resolution to standardize the input data and improve ridges visibility. The generator network incorporated nested skip connections and attention modules to recover the ridge patterns and preserved the fingerprint texture, while the discriminator guided the model towards realistic reconstruction outputs.

We have trained the model using NIST SD302E and NIST 302G datasets, which is then evaluated using FVC2002 and FVC2004 datasets. Our model has achieved a SSIM score of 0.99 on NIST 302E dataset which indicates that there is a strong structural similarity between groundtruth image and reconstructed image. We have done BOZORTH matching for recognition based evaluation giving results of 74.01, 75.03, 70.11, 72.00 on FVC2002 DB1 to DB4 respectively. We have also done equal error rate calculation giving 0.09, 0.10, and 0.18 on FVC2002 DB1, DB2, and DB4 and FVC2004 DB1, DB2, and DB4 gave 1.12, 1.50, and 0.29.

A Hybrid Rule-Based and Machine Learning Approach for Medical Intent Classification

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Abstract

The blistering development of online healthcare allows reforming the process of information delivery to a person. Although internet sources offer a fast access to the knowledge of health matters, they are also subject to serious challenges of inaccuracy, lack of medical background and consultation with professionals. The search engines or the conversation agents that the majority of users have used are not health care based, and are likely to generate confusion, panic, and delayed health care providers which is unhealthy. The recent past has seen the medical chatbots that operate under artificial intelligence get a table on how to enhance access to healthcare. The available chatbot systems are however inclined towards automating diagnosis in the majority of the cases or they are based on black box deep-learning models, which have reliability, explainability, and ethical issues when utilized in the medical domain. It is more likely that such systems will divide informational as well as emergency cases of health. The proposed paper is to develop HybridCare AI, a hybrid medical information and emergency-sensitive chatbot that will be focused on safe access to medical information, not the prediction of a disease. The system uses the Natural Language Processing methods that contain text preprocessing, TF-IDF feature extraction and cosine similarity to find the verified medical solutions of the MedQuAD data set. It also possesses an emergency detector which is based on the rules and preset to detect vital signs and suggest emergency medical care. It will be demonstrated in the analysis on the accuracy measures and the confusion matrices that the proposed system can work steadily and in a realistic way and its accuracy is 88-90 percent. The results have shown that the HybridCare AI is a reasonable tradeoff between interpretability, performance, and safety and can be utilized in academic research and education and health care awareness.

Keywords

Medicine, Artificial Intelligence, Medical Chatbot, Natural language Processing, TF-IDF, Medical information Retrieval, Emergency Detection.

SPAM SNIPER: An Environment-Aware Adaptive Probabilistic Framework for Real-Time Spam and Phishing Detection Under Edge-Computing Constraints

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Abstract

The rise of spam and phishing messages is a huge problem a systemic threat to worldwide information systems, specifically environments, impacting communities in resource-poor and connectivity-poor environments. Current detection approaches suffer from a *Latency–Accuracy–Energy Trilemma*: deep learning models offer marginally better accuracy, but require GPUs, multi-gigabyte model sizes, and energy demands of more than 10^3 MWh per full fine-tuning cycle – conditions that make them impractical to run on edge devices and low-power deployments. In this paper, we propose SPAM SNIPER, a for cybersecurity for edge-computing that relies on an *Environment-Aware Adaptive Probabilistic Classifier* (EAAPC) that integrates TF-IDF feature extraction with a new *Dynamic Laplacian Smoothing* (DLS) scheme. DLS adapts the smoothing hyperparameter α of each document based on its sparseness, leading to improved posterior calibration of the brief and noisy messages typical of mobile threat scenarios. Learning on a unified corpus of 69,374 human-annotated messages from of five publicly-available benchmarks, it delivers 98.91% accuracy, a false-positive rate (FPR) of 0.025%, precision of 99.97%, F1-score of 98.70%, and ROC-AUC of 0.99 on a held-out test set of 13,875 messages. The complete model training takes 25-28 s on free-tier cloud CPUs; inference is 45-50 ms per message on a typical laptop CPU; and the serialized model is only 87 KB. Testing with 24 real-world, modern phishing messages in late 2024 results in 96% detection rate and zero false positives. Pareto-efficiency analysis shows that SPAM SNIPER is the Pareto-optimal model among the Accuracy–Energy axis, setting a new benchmark for cybersecurity for all on resource-limited devices.

Keywords

Spam detection, phishing detection, Dynamic Laplacian Smoothing, Environment-Aware Adaptive Probabilistic Classifier, edge cybersecurity, Multinomial Naïve Bayes, TF-IDF, Pareto efficiency, resource-constrained machine learning.

Teaching Quality of Distance Education: Distance Education in Yunnan, China

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Abstract

Since the beginning of the COVID-19, the global economic and cultural situation has undergone earth shaking changes. The most obvious change is the significant shift in people's attitudes and operational methods towards collective activity industries. Among these industries, the education sector is undoubtedly the industry that has been most impacted and undergone the most significant changes. Due to the inability to conduct collective teaching during the epidemic, distance education was forced from a relatively secondary position to become the most mainstream teaching method in the education industry at that time. After this period of time, people's attention to distance education has become increasingly high. Even after the end of the epidemic, distance education still occupies a very high proportion in our daily lives. However, it is not difficult to find that there are some obvious shortcomings and inconveniences in the use and promotion of distance education today. Based on this social situation, it is highly valuable to conduct research on the current usage and future prospects of distance education. Based on a large amount of literature review and analysis work, this article selected four universities in Yunnan Province, China to release questionnaires. A questionnaire survey was conducted on students of different grades regarding the four core factors in online education. The collected data was analyzed and discussed in detail using reliable data analysis tools and theories. At the end, the two core questions raised in this article were answered based on the collected results, and on this basis, the existing problems in distance education were addressed, providing constructive suggestions for the future of distance education.

Keywords

Distance education, Learning stage, Online teaching.

Advancing Audio Fingerprinting Accuracy with AI and Machine Learning: Addressing Background Noise and Distortion Challenges

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Abstract

Audio fingerprinting is one of the vital concepts that has been widely used in many applications. However, the traditional approach of audio fingerprinting has limitations when it comes to real-time scenarios. In traditional audio fingerprinting systems, the presence of noise and distortions reduces the efficiency of the system. Therefore, there is a need to develop a system that can work effectively under adverse conditions.

This paper introduces a new AI-based audio fingerprinting system that can work effectively under adverse conditions. In the proposed system, CNNs are used to extract unique features from the audio signals represented by a spectrogram. In addition, Denoising Autoencoders are also used to reduce noise from the audio signals. Finally, the system uses GANs to correct the distortions that are likely to be present in the audio signals. In addition, a Flask-based web interface has been created to ensure the usability of the system. The results of the experiments indicate that the system has improved efficiency under adverse conditions. Therefore, the system has the potential to be a reliable tool for modern audio identification systems. In addition, the system has the potential for future enhancements, including the use of blockchain technology.

Keywords

Audio Fingerprinting, Deep Learning, Convolutional Neural Networks (CNN), Denoising Autoencoders, Generative Adversarial Networks (GAN), Spectrogram, Noise Reduction, Audio Matching, Cosine Similarity, Flask, Real-Time Systems.

