



9th International Conference on
Multi-Disciplinary Research Studies & Education

ICMDRSE 2026

29th-30th
May, 2026 | Kuala Lumpur
Malaysia

Organized by



Academic Partners



Ala-Too International
University, Kyrgyzstan



Center of Marine Ecology and Biomonitoring
for Sustainable Aquaculture (Ce-MEBSA)
Diponegoro University, Indonesia



ALT University
Kazakhstan



Management Studies
Sabaragamuwa University of Sri Lanka

Sabaragamuwa University of
Sri Lanka, Sri Lanka



9th International Conference on Multi-Disciplinary Research Studies and Education (ICMDRSE-2026),
Kuala Lumpur, Malaysia

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Conference Theme

**Empowering Education
and Research:
Shaping the Future
through Collaboration
and Innovation**

Preface

We are delighted to extend a warm welcome to all participants attending 9th International Conference on Multi-Disciplinary Research Studies and Education (ICMDRSE-2026) organized by Ala-Too International University (Kyrgyzstan), Center of Marine Ecology and Biomonitoring for Sustainable Aquaculture (Ce-MEBSA), Diponegoro University (Indonesia), ALT University (Kazakhstan), Sabaragamuwa University of Sri Lanka (Sri Lanka) and IFERP Academy-Malaysia Society on May 29th-30th, 2026 at Kuala Lumpur, Malaysia. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in the field of Research Studies and Education. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for ICMDRSE-2026 contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of Research Studies and Education. All submitted papers were subject to rigorous peer reviewing by 2–4 expert referees, and the papers included in these proceedings have been selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results in Research Studies and Education but also serve as a valuable summary and reference for further research in this field.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the many professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work. We also extend our appreciation to the external reviewers for providing additional support in the review process and to the authors for contributing their research results to the ICMDRSE-2026.

Since February 2026, the Organizing Committees have received more than 80+ manuscript papers, covering all aspects of ICMDRSE-2026. After review, approximately 25+ papers were selected for inclusion in the proceedings of ICMDRSE-2026. We would like to thank all participants at the conference for their significant contribution to its success.

We express our gratitude to the keynote and individual speakers and all participating authors for their dedication and hard work. We also sincerely appreciate the efforts of the technical program committee and all reviewers, whose contributions made this conference possible. Finally, we extend our thanks to all the referees for their constructive comments on all papers, and we express our deepest gratitude to the organizing committee for their tireless work in making this conference a reality.

About **ICMDRSE 2026**

The theme emphasizes the transformative power of collaboration and innovation in advancing education and multidisciplinary research. It reflects the conference's vision of fostering collective growth through shared knowledge, creative problem-solving, and global partnerships. By uniting educators, researchers, and professionals from diverse fields, the theme aims to inspire new ideas, promote interdisciplinary dialogue, and drive sustainable progress. It encourages participants to explore how innovation and teamwork can shape the future of education and research, ensuring impactful contributions toward global academic and societal development.

The conference theme "Empowering Education and Research: Shaping the Future through Collaboration and Innovation" represents a collaborative place where multiple academic subjects interact. It fosters cross-disciplinary conversation by providing a place for the sharing of ideas and techniques

This theme invites people to explore the connections between various subjects and underlines the value of different points of view in promoting innovation and enhancing the educational landscape.

9th ICMDRSE aims to break down disciplinary silos by bringing together specialists from many subjects to create an exciting environment for collaboration. The theme aims to foster the synergy of ideas, ultimately contributing to breakthroughs in education and transdisciplinary studies.



About IFERP Academy

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 places great emphasis on promoting research activities, communicating the latest 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 contributions in other scientific areas.

IFERP excels in organizing International Conferences that connect researchers worldwide. It hosts important international webinars, publishes journals indexed by Web of Science and SCOPUS, and provides thorough research assistance and guidance. Youth Empowerment projects and Industry-Institute Interaction are key parts of IFERP's mission. The organization is committed to enabling professionals through faculty development, skill building, and continuous research and publication initiatives.

What We Do?

IFERP believes that there is always a better way to treat the professionals by providing them a world class stage by organizing conferences. We are committed to doing the following activities

- We encourage convenient access to academic resources and support for all the aspirants and research scholars in urban and rural areas.
- IFERP organizes public education programmes, Workshops, Conferences, Webinars, Seminars, Guest Lectures, Short Term Training Programme, Faculty Development programme in the field of Engineering, Science & Technology.
- IFERP is dedicated to inquisitiveness, innovations and recent trends and developments in the field of Engineering & Technology.
- IFERP believes in knowledge sharing by collaborating with other Universities, organizations/Associations to bring a better tomorrow.

Mission

Upskilling the knowledge hub through technological innovation and excellence for the benefit of humanity.

Vision

A digitally equipped robust, dynamic & swift professional community integrating academics & industry for upgraded technical knowledge implementation.

Value

IFERP values the restoration of highlevel technological research, learning, collaboration, resource sharing & community-building traditions.

Goal

To serve as the foundation for all technological progress and advancement activities around the world.

Director's Message, IFERP

Mr. Siddth Kumar Chhajer

Managing Director, IFERP,
Technoarete Group, India



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 9th International Conference on Multi-Disciplinary Research Studies and Education (ICMDRSE-2026) is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in the field of Research Studies and Education .

This conference creates solutions in different ways and to share innovative ideas in the field of Research Studies and Education. ICMDRSE-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.

9th International Conference on Multi-Disciplinary Research Studies and Education (ICMDRSE-2026) will explore the new horizons of innovations from distinguished Researchers, Scientists and Eminent Authors in academia and industry working for the advancements in Studies and Education.

ICMDRSE-2026 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of Research Studies and Education.

CEO's Message, IFERP

Mr. Rudra Bhanu Satpathy

CEO, IFERP,
Technoarete Group, India



IFERP is hosting the 9th International Conference on Multi-Disciplinary Research Studies and Education (ICMRSE-2026) this year in month of May, 2026.

The main objective of ICMRSE-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

Director's Message, Ce-MEBSA

Mr. Sapto P. Putro, Ph.D

Director - Center of Marine Ecology
and Biomonitoring for Sustainable
Aquaculture (Ce-MEBSA),
Diponegoro University, Indonesia



Distinguished guests, respected scholars, researchers, educators, and participants,

It is my great honor and pleasure to welcome you to the 9th International Conference on Multi-Disciplinary Research Studies and Education (ICMDRSE-2026), held on May 29th–30th, 2026, in Kuala Lumpur, Malaysia.

I am Prof. Sapto Purnomo Putro, Professor in Marine Ecology and Sustainable Aquaculture, Founder of the Center of Marine Ecology and Biomonitoring for Sustainable Aquaculture (Ce-MEBSA), Universitas Diponegoro, Indonesia. I am truly delighted to join this prestigious international gathering that brings together experts, academics, innovators, and professionals from around the world to exchange ideas, strengthen collaborations, and advance impactful research across multiple disciplines.

The theme of this year's conference, "Empowering Education and Research: Shaping the Future through Collaboration and Innovation," strongly reflects the importance of interdisciplinary cooperation in addressing global challenges and creating sustainable solutions for society.

I sincerely believe that ICMDRSE-2026 will become an excellent avenue to foster scientific advancement, expand international networking, and promote collaborative partnerships that contribute to creativity, sustainability, and inclusive global growth.

May this conference inspire new perspectives, productive collaborations, and future innovations that will benefit both science and humanity.

Welcome to Kuala Lumpur, Malaysia, and I wish all participants a successful, insightful, and memorable conference experience.

Thank you.

Dean's Message, Sabaragamuwa University

Dr. Athula Gnanapala

Professor in Tourism Management,
Dean / Faculty of Management
Studies, Sabaragamuwa University of
Sri Lanka, Sri Lanka



It is with great pleasure and privilege that I extend a warm welcome to all distinguished delegates, researchers, academicians, industry professionals, and students participating in the 9th International Conference on Multi-Disciplinary Research Studies and Education (ICMRSE-2026), to be held on 29th and 30th May 2026 in Kuala Lumpur.

Organized by IFERP Academy - Malaysia Society in collaboration with its esteemed academic partners — Ala-Too International University, ALT University, Sabaragamuwa University of Sri Lanka, and Center of Marine Ecology and Biomonitoring for Sustainable Aquaculture (Ce-MEBSA), Diponegoro University — this conference represents a significant platform for advancing global academic collaboration and multidisciplinary research engagement.

Centered on the theme “Empowering Education and Research: Shaping the Future through Collaboration and Innovation,” the conference seeks to inspire transformative ideas and foster interdisciplinary partnerships that contribute to sustainable progress in education, science, technology, and society. ICMRSE-2026 provides a dynamic forum for scholars, researchers, educators, and professionals to exchange innovative practices, explore emerging research trends, and strengthen international academic and professional networks.

The theme highlights the critical importance of collective action, knowledge sharing, and creative thinking in addressing contemporary global challenges. It reflects the belief that meaningful collaboration among academics, researchers, educators, and innovators can generate transformative solutions that advance educational excellence, scientific discovery, and technological innovation. By integrating multidisciplinary perspectives and encouraging innovation-driven research, the conference envisions a future where education and research serve as powerful catalysts for sustainable development, societal well-being, and inclusive technological progress.

International conferences of this nature play a vital role in promoting intellectual exchange, cross-cultural understanding, and global cooperation. They create opportunities for meaningful dialogue across disciplines and geographical boundaries, encouraging partnerships that contribute to the advancement of knowledge and the betterment of society worldwide.

At the Faculty of Management Studies, Sabaragamuwa University of Sri Lanka, we place strong emphasis on research excellence, academic innovation, and international collaboration. We remain committed to nurturing future generations who are not only intellectually capable and technologically competent, but also socially responsible and environmentally conscious. We firmly believe that education and research are among the most powerful instruments for creating positive and lasting change in society.

I would like to sincerely commend the organizers for their dedication and commitment in bringing together this important international academic forum. I wish all participants productive deliberations, inspiring interactions, and a rewarding academic experience. May this conference serve as a catalyst for new ideas, enduring collaborations, and impactful contributions toward a more sustainable and prosperous global future.

I extend my best wishes for the grand success of ICMDRSE-2026 and trust that this conference will inspire meaningful collaborations, innovative research, and impactful contributions toward a sustainable and progressive global future.

Vice Rector's Message, ALT University

Dr. Gani Sergazin

Vice-Rector for Science and
International Cooperation,
ALT University, Kazakhstan



Dear Distinguished Guests, Researchers, Academicians, Industry Experts, and Participants, On behalf of ALT University, Kazakhstan, it is my great honor and privilege to welcome you to the 9th International Conference on Multi-Disciplinary Research Studies and Education (ICMRSE 2026), organized in collaboration with the Institute for Educational Research and Publication.

ALT University is proud to serve as an Academic Partner for this prestigious international event that brings together scholars, scientists, innovators, and professionals from around the world to exchange knowledge, share research findings, and foster interdisciplinary collaboration.

In today's rapidly evolving global environment, international academic cooperation and multidisciplinary research play a vital role in addressing complex scientific, technological, and societal challenges. Conferences such as ICMRSE provide an important platform for intellectual dialogue, innovation, and sustainable academic partnerships that contribute to the advancement of education and research worldwide.

I highly appreciate the Institute for Educational Research and Publication's continuous efforts in promoting research excellence, academic networking, and global scientific engagement.

I believe that this collaboration will open new opportunities for faculty members, researchers, and students through academic exchange, joint research initiatives, publications, and professional development.

ALT University remains committed to supporting initiatives that strengthen internationalization, innovation, and research culture among higher education institutions. I am confident that the Conference will become a productive and inspiring forum for all participants.

I wish all delegates a successful conference, fruitful discussions, valuable networking opportunities, and a memorable experience in Kuala Lumpur.

Thank you, and we look forward to a successful collaboration.

Vice Rector's Message, Ala-Too International University

Ms. Aijarkyn Kojobekova

Vice-Rector for Research &
Innovation, Ala-Too International
University (AIU), Kyrgyzstan



Distinguished guests, esteemed academics, researchers, educators, professionals, and dear participants, It is a great privilege and sincere pleasure to welcome you to the 9th International Conference on MultiDisciplinary Research Studies and Education (ICMDRSE-2026), taking place on May 29th–30th, 2026, in the vibrant city of Kuala Lumpur, Malaysia.

I am Assoc. Prof. Aizharkyn Kozhobekova, Vice Rector of the International University Ala-Too, Kyrgyzstan. I am honored to address such a distinguished international audience gathered here with a shared commitment to advancing education, research, and innovation.

In an era defined by rapid global transformation, conferences like ICMDRSE-2026 play a vital role in bringing together scholars, scientists, educators, and industry experts from diverse backgrounds to exchange ideas, discuss emerging challenges, and develop collaborative solutions that can positively impact our societies and future generations.

This year's theme, "Empowering Education and Research: Shaping the Future through Collaboration and Innovation," reflects the growing importance of interdisciplinary dialogue and international partnership in driving scientific progress, sustainable development, and meaningful educational advancement.

I firmly believe that this conference will serve not only as a platform for presenting valuable research, but also as an opportunity to build lasting academic connections, encourage innovative thinking, and inspire new initiatives across disciplines and borders.

May your participation in ICMDRSE-2026 be enriching, productive, and inspiring. I wish you engaging discussions, successful networking, and memorable experiences throughout the conference.

Welcome to Kuala Lumpur, and thank you for being part of this important global gathering.

Thank you!

About Guest of Honor

Ms. Aijarkyn Kojobekova

Vice-Rector for Research &
Innovation, Ala-Too International
University (AIU), Kyrgyzstan



Aijarkyn Kojobekova (Aizharkyn Kozhobekova) is Vice-Rector for Research and Innovation at Ala-Too International University and an expert in ICH, memory studies, and social resilience in Central Asia. With over twenty years of experience, she brings together academic research, teaching, and university leadership with active involvement in international initiatives on safeguarding ICH.

Her work focuses on connecting heritage with education, gender equality, sustainable development, and climate change. She contributes to regional and international programmes across Central Asia and the Asia-Pacific and serves as a member of the UNESCO Memory of the World RSC for Asia-Pacific (MOWCAP) and the MoW RSC for the International Register.

About Invited Keynote Speaker

Mr. Abirlal Mukherjee

Professor,
Universal Digital Education Initiatives
(UDEI), India



Prof. Abirlal Mukherjee, Founding Chair, Universal Digital Education Initiatives (UDEI). Prof. Abirlal is the Founding Chair of Universal Digital Education Initiatives (UDEI), Digital University Ranking (DUR), Association of Digital Universities (ADU), Indian Internet Observatory (IIO), Digital Humanities Alliance (DHA). Country Director for Digital Access Now (DAN), USA. Abirlal Mukherjee has introduced the academic domains of Viromemeology, Virolinguistics, and Internet Waste Studies, shaping new directions in interdisciplinary research on digital cultures.

He serves as a member of the Internal Complaints Committee at GITAM Bengaluru and is a Teach For India Fellow (2023) and InSIG Fellow at IIM Bangalore (2024). His global academic engagement includes serving on the Fellowship Selection Committee of the UN IGF Network (YIGF) and membership in the Internet Society (Bengaluru Chapter). Mukherjee is the Editor-in-Chief of journals in Critical Digital Humanities, Internet Linguistics, and Internet Waste Studies (WaveHills), and has held editorial roles with Emerald, Warwick, and Digital Humanities Now. He is also the Book Series Editor for Evolutionary Urbanities (Peter Lang, UK).

About Invited Keynote Speaker

Dr. Athula Gnanapala

Professor,
Sabaragamuwa University of
Sri Lanka, Sri Lanka



Professor (Dr.) Athula Gnanapala is a distinguished scholar in Tourism Management and currently serves as Professor in the Department of Tourism Management at Sabaragamuwa University of Sri Lanka (SUSL). He is the Dean of the Faculty of Management Studies at SUSL and has previously held several senior academic and administrative roles, including Acting Vice-Chancellor of the University. Prof. Gnanapala earned his BSc in Tourism Management from SUSL in 1997, followed by an MSc in Management from the University of Sri Jayewardenepura in 2003.

He completed his PhD in Tourism Management in 2011 at the School of Business, Xiamen University, P.R. China. An accomplished researcher, he is the Co-Editor-in-Chief of the South Asian Journal of Tourism and Hospitality. His scholarly contributions include 25 books and book chapters, over 50 indexed and refereed journal articles, and more than 100 international conference presentations. He also serves as a reviewer, consultant, editorial board member, and postgraduate and PhD supervisor.

Prof. Gnanapala holds memberships and leadership roles in several national and international bodies, including SLIM and PBCA. He has contributed to major international projects and national policy initiatives. Recognized for his research excellence, he is rated a Tier 4* researcher by the UGC of Sri Lanka, with over 1,700 citations and an h-index of 20.

About **Keynote Speaker**

Dr. Md. Uzir Hossain Uzir

Taylor's University,
Malaysia



Dr. Md. Uzir Hossain Uzir is a Senior Lecturer-I (Assistant Professor) at Taylor's Business School, Taylor's University, Malaysia. Previously, he served at Putra Business School, Universiti Putra Malaysia (UPM), and earlier at the Faculty of Economics, Business, and Social Development (FBESD), Universiti Malaysia Terengganu (UMT), Malaysia, as a Senior Lecturer. He began his academic career as a Lecturer at Lincoln University College, Malaysia. Dr. Uzir obtained his doctoral degree from Putra Business School (PBS), Malaysia—the first AACSB-accredited business school in the country—where he conducted his PhD research on brand loyalty for electronic home appliances in Bangladesh under the supervision of Prof. Dr. Abu Bakar Abdul Hamid.

About Keynote Speaker

Ts. Dr. Md. Rezaur Rahman

Associate Professor,
University Malaysia Sarawak,
Malaysia



Dr. Md. Rezaur Rahman, currently serving as an Associate Professor at the Department of Chemical Engineering and Energy Sustainability, UNIMAS. With over 300 indexed journal publications, extensive experience in advanced polymer processing, biopolymer-based materials, membrane technology, nanocomposites, and sustainable materials engineering. Currently, Myh-index is 38 (google scholar) and i10-index-114 with 6560 citations. My standing in my area of specialization is shown by my membership in professional societies in the area of Chemical society, (Bangladesh) and Malaysia Board of Technologist (MBOT), and Institute of Chemical Engineer (ICChemE). I have also registered with Malaysian Board of Technologist (MBOT) as Professional Technologist (PTech) as Material Science Technology. My contribution to UNIMAS management is through my current capacity as leader and supervisor in my research group, as a member of the various committees at department and faculty level. I am listed as a Top 2% world scientist by Stanford University along with Elsevier.

About Keynote Speaker

Dr. Ahmed A. Al-Amiery

Professor,
Al-Ayen Iraqi University,
Iraq



Dr. Ahmed Al-Amiery is an internationally respected scientist in the fields of green chemistry, materials science, and corrosion inhibition. Born in Baghdad, Iraq, in 1975, he received his B.Sc. From Al-Mustansiryah University and M.Sc. degrees in Chemistry from the University of Baghdad, followed by a Ph.D. in Organic Chemistry. He has dedicated his career to advancing sustainable chemical technologies and enhancing scientific capacity across developing regions. Currently affiliated with the Energy and Renewable Energies Technology Center at the University of Technology, Baghdad, and a visiting professor at multiple international institutions, Dr. Al-Amiery combines cutting-edge research with a deep commitment to mentoring and collaboration, particularly within the Global South. Dr. Al-Amiery's core research focuses on the design and synthesis of heterocyclic organic compounds with applications in corrosion inhibition, antioxidant activity, biomedical chemistry, and renewable energy systems. His work has significantly impacted the development of green alternatives to environmentally harmful industrial chemicals. He has authored over 450 peer-reviewed articles, several book chapters, and technical reviews in high-impact journals, and his Google Scholar citations exceed 17000, with an h-index over 70, reflecting the wide recognition of his work in academia and industry.

About Keynote Speaker

Dr. Nurnadiah Zamri

Associate Professor,
Universiti Sultan Zainal Abidin,
Malaysia



Assoc. Prof. Dr. Nurnadiah Zamri is a Senior Lecturer in Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin where she has been a faculty member since 2015. She completed her Ph.D. in Mathematical Sciences at Universiti Malaysia Terengganu. Her major research interests lie in fuzzy expert systems, fuzzy decision making, social statistics and data sciences. Previously, she served as a Visiting Postdoctoral Researcher at Manchester Cancer Research Centre, University of Manchester where she works with David Wedge in the field of Cancer Genomics and Data Science. Her work focuses on applying machine learning, deep learning, and statistical techniques to make novel discoveries across a wide range of cancer types. Her target is to analyse data from Whole Genome Sequencing (WGS) experiments to identify genomic features that drive tumour evolution, with her focus on lung and prostate cancers. Besides, she has also published outstanding research articles broadly in her area. She has been selected as one of the recipients of the 'Oréal-UNESCO For Women in Science 2025 award, as well as one of the recipients of the International Grant from the Kurita Water and Environment Foundation 2025. She also received a travel grant to attend the International Congress of Mathematics 2022. She was selected as a fellow for the CEO@Faculty Programme 2.0 Cycle 2 in 2018 and completed a six-month industry attachment at Sun Life Assurance Malaysia Berhad. Additionally, she was one of the finalists for the Merdeka Award 2019. She has experienced as an Editor for Malaysian Journal of Computing and Applied Mathematics and Malaysian Journal of Applied Sciences since 2016. Major involvement in planning and conducting events especially national and international conferences, seminars, convention, corporate talk, convocation, dinners and other social/academic events with various responsibilities (event manager, host, committee etc.). Lead event management conducted by students and worked closely with students, administrators, and others. She has actively participated as a reviewer, jury, evaluation panel, facilitator, workshops and courses for staff and students' module.

About Keynote Speaker

Ts. Dr. Khairur Rijal Bin Jamaludin

Professor,
Universiti Teknologi Malaysia,
Malaysia



Prof. Dr. Khairur Rijal Jamaludin holds a Ph.D. in Manufacturing Engineering from Universiti Kebangsaan Malaysia, a Master's degree in Engineering Business Management from the University of Warwick, UK, and a Bachelor's degree in Mechanical Engineering from Universiti Teknologi Malaysia (UTM). He began his professional journey at Proton, Malaysia's national carmaker, where he served in the Engine & Transmission Department. During his tenure, he played a key role in upgrading plant capacity and setting up production lines for new engine models. This hands-on industrial experience provided a solid foundation in production engineering and shaped his career in research and academic leadership. Since joining Universiti Teknologi Malaysia in 1997, Prof. Dr. Khairur Rijal has established himself as a leading expert in the integration of Artificial Intelligence (AI) into Quality Engineering. His research is particularly focused on enhancing the principles of Dr. Genichi Taguchi through modern AI-driven approaches. He has published extensively and leads multiple high-impact research projects, including a prominent contract research collaboration with Panasonic Appliances and Air Conditioning, where he focuses on productivity enhancement through smart manufacturing systems. Internationally, he is the recipient of a prestigious research grant from the Toshiba International Foundation (TIFO), Japan. This cross-national research explores the innovation strategies of Japanese SMEs and provides actionable insights for Malaysian SMEs to adopt similar practices in boosting competitiveness, agility, and sustainability in the face of global challenges.

About **Keynote Speaker**

Ts. Dr. Nur Azaliah BT Abu Bakar

Associate Professor,
Universiti Teknologi Malaysia,
Malaysia



Assoc. Prof. Ts. Dr. Nur Azaliah Abu Bakar is the Associate Director at UTM International Kuala Lumpur and a faculty member at the Faculty of Artificial Intelligence, Universiti Teknologi Malaysia (UTM). With 25 years of experience spanning academia, government, and industry, she specialises in enterprise architecture, artificial intelligence, business analytics, and cybersecurity. She is a consultant in enterprise architecture and digital transformation initiatives, actively shaping research, policy development, and innovation strategies. A member of the IEEE Society, the Malaysian Board of Technology (MBOT), and several international associations, she is also a sought-after speaker at global forums. Passionate about student engagement and leadership, she drives international collaboration and mobility programs in higher education.

About Keynote Speaker

Dr. Sapto P. Putro

Professor,
Diponegoro University,
Indonesia



Sapto P. Putro obtained his undergraduate degree from the Faculty of Biology, Jenderal Soedirman University, Purwokerto, Central Java, Indonesia, in 1992. He subsequently pursued a Master's degree in Ecology at the Postgraduate Program of the Bandung Institute of Technology, West Java, Indonesia, graduating in 1999. In 2007, he earned his Doctorate (Ph.D.) in Marine Ecology and Aquaculture from the School of Biological Sciences, Faculty of Science and Engineering, Flinders University of South Australia. He was conferred the title of Professor in Marine Biology in 2021. Dr. Putro has dedicated many years to the study of aquatic ecology, focusing primarily on biomonitoring aquaculture activities in diverse aquatic environments, including lakes, rivers, coastal areas, offshore regions, and coastal aquaculture systems across both tropical and temperate ecosystems.

He currently serves as a Senior Lecturer specializing in Ecology and Aquaculture at the Department of Biology, Faculty of Science and Mathematics, Diponegoro University, Indonesia. Actively engaged in national and international scientific forums, Dr. Putro is a member of several professional organizations, including the Indonesian Biological Association (PBI), the Indonesia Aquaculture Society (IAS), and the World Aquaculture Society (WAS). He also serves on the editorial boards of several international scientific journals and frequently participates as an international keynote speaker at scientific conferences related to Marine Ecology and Aquaculture. Dr. Putro has published numerous articles in reputable international journals and authored several books. His ongoing research emphasizes the development of smart, productive, and sustainable aquaculture practices through the application of Integrated Multi-Trophic Aquaculture (IMTA) systems.

Among his notable innovations is the patented Stratified Double Net Cage (Patent No. IDS000001488, August 8, 2016; Trademark "KJABB-IMTA SP01" No. IDM000661772, August 24, 2017; DJKI RI). The KJABB-IMTA product was recognized among the "110 Most Prospective Indonesian Innovation Works" in 2018 and has since received several prestigious awards, including the 2023 Award for the Smart Dashboard System supporting Smart Modern Aquaculture and Eco-Edu-Tourism, as well as the 2024 Award for the Smart Robotic IMTA Cage supporting Productive Sustainable Mariculture, both granted by the Business Innovation Center (BIC). In addition, Dr. Putro developed innovative biomonitoring software integrating abiotic and biotic data (macrobenthic structure), which received copyright registration (No. 000143025, EWS-3SWJ Software, January 16, 2019, DJKI RI). He also founded and currently leads the Center of Marine Ecology and Biomonitoring for Sustainable Aquaculture (Ce-MEBSA), a center dedicated to advancing research and innovation in sustainable aquaculture practices.

About Session Speaker

Ir. Dr. Jamaluddin Mahmud

Professor,
Universiti Teknologi MARA,
Malaysia



Prof. Ir. Dr. Jamaluddin Mahmud is a Professor of Computational Mechanics at Universiti Teknologi MARA (UiTM) and a Professional Engineer, registered with the Board of Engineers Malaysia (BEM). He currently serves as the Editor-in-Chief of the Journal of Mechanical Engineering. He holds a PhD in Engineering (Biomechanics) from Cardiff University (UK), an MSc in Manufacturing Engineering from International Islamic University Malaysia (IIUM), and a B.Eng. (Hons.) in Mechanical Engineering from UiTM. Since joining UiTM as a lecturer in 2001, He has served in various leadership and management roles, including Deputy Dean, Head of Academic Programmes, and Head of Industry Linkage at the Chancellery's Office of Industry, Community and Alumni Network (ICAN). His research and teaching focus on Biomechanics, Composite Structures, Finite Element Method, and Product Design. With over 200 publications and prior industry experience at UMW Equipment Sdn. Bhd., he actively contributes to national and international committees, editorial boards, and technical panels, reflecting his standing as a respected expert in mechanical and computational engineering.

About Session Speaker

Dr. Chokchai Yuenyong

Associate Professor,
Khon Kaen University,
Thailand



Chokchai Yuenyong is an Associate Professor of Science Education at Khon Kaen University, Thailand. He received his Ph.D. in Science Education from Kasetsart University in collaboration with the University of Waikato, with support from an IPST scholarship. He serves as President of the Science Education Association of Thailand (SEAT) and was recognized among the world's top 2% scientists in 2022 by Stanford University. His research interests include student learning in physics, constructivist science teaching, scientific literacy, science teacher education, STEM education, and cultural issues in science education. He currently leads a project on a PLC STEM academy to enhance STEM teacher competencies. Dr. Yuenyong has published around 130 SCOPUS-indexed and 47 Web of Science-indexed papers.

About Session Speaker

Dr. Amar Johri

Saudi Electronic University,
Saudi Arabia



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Dr. Ho Meng Chuan is an Assistant Professor and Head of the Centre for Pre-U Studies, specializing in Family Ecology and Psychology. His expertise includes adolescent psychology, parenting styles, and mental well-being, with involvement in FRGS-funded research on caregiver mental health and education. He has published widely on psychological well-being, academic stress, and online learning among students. His interdisciplinary work addresses modern societal challenges, and he is an active member of professional psychological and health associations, contributing to research and education impact.

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Remote Learning Ecosystem for Rural Higher Education (Akalya)

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Abstract:

Availability of quality higher education is still a significant challenge to the students living in rural areas and underserved regions. Even though the digital learning platforms and online education technologies have grown considerably over the past few years, the majority of the available systems are focused on urban institutions that have reliable internet connectivity, developed digital infrastructure, and access to modern learning devices. In rural learning conditions, many challenges are common such as insufficient technological facilities, lack of trained personnel, language disparities, and knowledge about educational and professional advancement. These issues pose a major disparity in the access of education between the city and rural communities.

In this study, the author introduces Akalya - Remote Learning Ecosystem for Rural Higher Education, a web-based learning platform that facilitates electronic learning, administration, and career development in rural institutions. The proposed system is a convergence of role-based access control, artificial intelligence-enhanced academic support, multilingual access, and career guidance services in one learning atmosphere. The system offers unique dashboards to students, teachers, and administrators to coordinate learning processes successfully.

The essential part of the system is the AI-based virtual assistant that supports the user continuously through answering academic questions, assisting with the platform navigation, and helping with academic materials. Also, the system has a Career Gateway feature, which gives the system orderly information regarding scholarships, competitive examinations, certifications, and employment opportunities to the students in rural regions.

The system architecture is created based on React.js front-end interface, Node.js and Express.js back-end services, and MongoDB as a database management tool. The architecture is modular so that it can be easily scaled to be deployed in several educational institutions. The suggested system will enhance the accessibility of digital learning, academic engagement, and a complex educational support system of institutions of higher learning in rural regions.

Index Terms:

Remote Learning, Rural Education, Artificial Intelligence in Education, Learning Management System, Multilingual Learning Platforms, Career Guidance Systems, Digital Education Infrastructure, Smart Education Systems

Design & Fabrication of Solar Powered EV Bicycle by using Sealed Led Acid Battery fed to PMDC Motor & a Comparative Study

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Abstract:

The fuel prices throughout the world are increasing day by day thus there is a tremendous need to search for an alternative to conserve these natural resources. Thus, a solar bicycle is an electric vehicle that provides that alternative by harnessing solar energy to charge the battery and thus provide required voltage to run the motor.

India is blessed with nine months of sunny climate thus the concept of solar bicycle is very friendly in India. Hybrid bicycles combine the use of solar energy as well as the dynamo that runs through the pedal to charge the battery to run the bicycle. Thus, solar hybrid bicycles can become a very vital alternative to the fueled automobile thus its manufacturing is essential.

This study sought to investigate the making of a sustainable solar-powered electric bicycle. The idea of sustainable development has gained significant traction over the last few decades. As reserves of coal, natural gas, and petroleum deplete, it is becoming ever more imminent to switch to renewable sources of energy. The objective of this study was to determine the reliability and cost efficiency of a solar-powered electric bicycle in daily life.

The prototype bicycle now has a top speed of 10–15 km/h and can travel up to 70 kilometres in a single charge. The bicycle can be fully charged in 3 hours with the standard lithium-ion battery and in about 5.5 hours via the attached solar panel.

The Role of Faculty Digital Skills and Competence in Fostering Students' Academic Engagement

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Abstract:

Digital transformation has significantly reshaped the content of higher education, intensifying the requirements for faculty digital competencies. Expansion of online platforms, analytical tools, and AI transform the academic environment and influence instructor-student interactions. In this context, faculty digital skills as a factor of formation of students' academic engagement gains particular attention. Despite the numerous research on this topic, empirical data on digital competencies and student engagement relations remains limited.

The aim of the study is to determine the significance of faculty digital competencies in fostering student engagement within digital transformation of universities.

The empirical basis is an online survey of 440 faculty from Kazakhstani HEI. The sampling was formed using a combined design that included regional stratification and random selection of universities. Descriptive statistics and qualitative analysis of open-ended responses were used to identify key trends in perceptions of educational innovations and implementation barriers.

The findings demonstrate that digitalization is perceived as a dominant trend in academic environment. Usage of digital platforms and online-learning was mentioned by 62% of respondents. Practice-oriented approaches, including project-based learning and integration of science, education, business were supported by 43% of participants. Hybrid learning modes (39%), virtual and augmented reality technologies (28%) are considered promising, however, less widely implemented. Individualized learning is supported by only 18%, suggesting possible institutional limitations.

The results confirm that developing digital competencies is crucial for enhancing student engagement and improving effectiveness of educational processes. These findings can be used in designing university digital transformation strategies and faculty professional development programs.

Index Terms:

Digitalization Of Education, Digital Teacher Competencies, Academic Engagement, Higher Education, Educational Innovations

What Kind of Educational Leader Is Needed in AI-Mediated Decision-Making? A Systematic Review of Leadership Authority and Competencies

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Abstract:

The integration of artificial intelligence (AI) in education raises questions about authority and accountability. While AI enhances efficiency, it transforms leadership dynamics. This study explores educational leadership's evolution with AI, investigating leadership needed when decision-making involves humans and AI. It addresses how AI challenges conventional leadership, necessary skills for AI collaboration, and integrating these skills into a strategy. A systematic literature review followed PRISMA 2020 guidelines, using Q1–Q2 Scopus-indexed journal articles from 2014 to 2025. From 157 initial records, 40 studies were included through structured screening and full-text analysis, supported by a research-question-driven analytic matrix. The findings highlight three key insights for educational leadership practice. First, AI does not replace leadership authority but reconfigures it, shifting leadership from individual control to relational and mediated governance, while accountability remains human. Second, effective leadership in AI environments depends on judgement-based competencies, including ethical reasoning, critical interpretation of algorithmic outputs, governance literacy, and stakeholder engagement. Third, existing scholarship remains fragmented, offering limited integrative guidance for leadership practice. The paper proposes a Human–AI Augmented Educational Leadership framework positioning leaders as accountable governance actors for AI-supported decisions. It contributes to leadership theory and practice by supporting ethically grounded, context-sensitive leadership aligned with contemporary educational governance challenges.

Innovative Deep Learning Based Crime Detection for Public Security using Video Surveillance

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Abstract:

The recent increase in the crime rates of gun violence, theft, and traffic/public offenses has pushed the question of security of the people to the forefront in the modern smart cities. The traditional surveillance systems largely depend on human surveillance which is inefficient and likely to cause errors and failure to respond immediately. Sophisticated crime detecting robots are on the top list as the number of surveillance cameras is surging exponentially. This paper proposes a new video crime detection system with deep learning capabilities that have the ability to tell whether an individual is committing a crime using real-time surveillance footage such as using guns, stealing, and violating laws in public. It is the proposed system that integrates an iterative deep learning architecture of temporal modelling with a convolutional neural network of spatial feature extraction. Deep detectors based on the use of the YOLO are relied on to detect object-level criminal indicators, and LSTM networks to detect sequential behavioural patterns. The system is trained and evaluated by use of custom-labeled surveillance data and benchmark sets of crime video data. Mathematical modelling has been used to measure accuracy, precision, recall, F1-score, and detection latency. The proposed hybrid deep learning solution is found to achieve impressive performance over single-model deep learning systems and standard machine learning, due to experimental results. The system can be deployed in real-time in the current public security systems of a smart city, airport, train station, and urban surveillance networks because it will offer high detection rates with minimal false notifications.

Index Terms:

Crime Detection, Smart Surveillance, Deep Learning, Object Detection, Temporal Behaviour Analysis, Convolutional Neural Networks, Long Short-Term Memory

A Generative AI Framework for Drug Molecule Discovery

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Abstract:

Context: Drug discovery remains slow and expensive because only a small fraction of screened compounds progress to promising lead candidates. Generative artificial intelligence offers a practical way to explore chemical space more efficiently by learning patterns from known molecules and proposing structurally novel candidates. This study presents a generative AI framework for early-stage drug molecule discovery that integrates data preparation, molecular generation, computational screening, and candidate prioritization in a single workflow. In an EGFR proof-of-concept setting, the framework generated candidate molecules that were filtered using docking and multi-parameter property evaluation. The results support the value of the workflow for reducing the early-stage search space, while still requiring experimental validation before any biological claims can be made.

Methods: Public molecular resources including PubChem, DrugBank, ChEMBL, ZINC, and the Protein Data Bank were used for data collection and target selection. Molecular structures were cleaned by removing duplicates, invalid records, and incomplete entries before conversion into machine-readable molecular representations. A variational-autoencoder-based generative configuration was used to produce candidate molecules, which were subsequently prioritized through docking-oriented scoring, drug-likeness analysis, QED, synthetic accessibility, toxicity-related screening, solubility, molecular weight, LogP, and permeability. The prototype workflow was implemented in Python and inspected through a Streamlit and Plotly-based interface.

Index Terms:

Generative AI, Drug Discovery, Molecular Generation, Molecular Docking, ADMET

Realism Enhancement Techniques for Hair Style Transfer Using Generative Adversarial Network (GAN)

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Abstract:

Hairstyle transfer is a computer vision task that aims to modify a person's hairstyle in an image while preserving their identity and other facial attributes. This research proposes a novel approach by integrating StyleGAN3, a state-of-the-art generative model, with a MichiGAN-style style injection strategy (layer-swap) and hair mask-based pixel fusion to improve identity preservation and feature alignment during the style transfer process. Using high-resolution facial image datasets such as CelebA-HQ and a curated collection of hair images, the proposed framework was trained and evaluated under multiple metrics, including identity similarity (LPIPS, PSNR, SSIM), style accuracy, and user preference tests. The experimental results show that our method significantly outperforms baseline models in maintaining facial identity while achieving natural and visually appealing hairstyle changes, though full maturity requires extended training beyond 200 kimg.

Index Terms:

Generative Adversarial Networks, Hairstyle Transfer, Identity Preservation, MichiGAN-style, StyleGAN3
CCS Concepts — Computing methodologies → Computer vision; Neural networks; Image manipulation;
Generative adversarial networks

The integration of Information and Communication Technology (ICT) in English Language Teaching significantly enhances pedagogical methods and educational outcomes. A Review

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Abstract:

The integration of Information and Communication Technology (ICT) in English Language Teaching (ELT) has transformed traditional instructional practices and enhanced language learning outcomes. This study examines the impact of ICT tools, including language-learning software, mobile applications, digital platforms, and online resources, on teaching practices and learner achievement in secondary and foreign language classrooms. The research aims to explore the benefits, challenges, and emerging trends associated with ICT integration in ELT.

This study employs a qualitative literature review methodology to examine contemporary research on the integration of ICT in English language instruction. The review concentrates on essential themes including learner engagement, autonomous learning, the enhancement of communication skills, and instructional innovation. We chose and looked at relevant studies to find patterns, chances, and problems with using ICT tools in language classrooms.

The results show that ICT tools greatly improve student engagement, collaboration, and access to real language materials, which helps create personalized and interactive learning environments (Chapelle, 2016; Kessler, 2018). Also, ICT helps students become more independent and better at communicating by giving them access to multimedia resources and allowing them to interact with each other online. However, problems like a lack of technology infrastructure, a lack of teacher training, and digital inequality still make it hard to use ICT effectively (UNESCO, 2021). New technologies like AI, virtual reality, and mobile assisted language learning have a lot of promise for the future of ELT (Godwin-Jones, 2018).

The study finds that good use of ICT has a positive effect on how well students learn and teach English. To get the most out of learning, it's best to use both technology and traditional teaching methods in a balanced way. For ICT to be successfully used in ELT classrooms, teachers need to keep getting training, the infrastructure needs to get better, and institutions need to help.

Index Terms:

ICT Integration, English Language Teaching, Digital Learning, Language Education, Technology in Education

Deep Learning Based Intrusion Detection System

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Abstract:

Also critical in the process of ensuring that security and integrity of the modern computer networks are upheld is the intrusion detection systems considering the heightened sophistication of the cyber-attacks. The conventional methods of intrusion detection usually are based on a list of pre-existing signatures or rules, which very often are incapable of addressing new or emerging threats. Nevertheless, deep learning has become a viable method of counter these deficiencies over the past few years since it is a serious tool of performing automatic feature mining and providing an enhanced pattern recognition ability to crude network information. The objective of the paper author is to derive and model a work infrastructure on a concept of intrusion detection system, which is based on deep learning, to offer high accuracy and robustness as far as cyber threat management is concerned. The suggested architecture will rest on the hybrid system that will be adopted to be based on the deep learning of Convolutional Neural Networks (CNN) and Long Short-Term Memory (LSTM). CNN layers prove useful in learning spatial representation of the network traffic data and the LSTM layers prove useful in learning time dependence that is useful in learning sequence of harmful events. It is this combination of the two models that causes the system to analyse good the content of such flows and the time dimension of the network flows. In doing so, sophisticated pattern of attack can be distinguished, like the one caused by course of time, e.g. distributed denial-of-service (DDoS) or multi-stage attacks. To detect zero-day attack, the deep learning models may be retrained after some duration according to the new traffic to identify the one that has not been detected by the traditional signature-based IDS. Besides this, the paper identifies the research areas such as explainable AI implementation to enhance the interpretability of the detection result and distributed IDS framework to enhance the speed of scaling the detection and resiliency of fault in the large-scale networks.

Index Terms:

Intrusion Detector, Deep Learning, Network Security, Convolutional Neural Network (CNN), Long Short Term Memory (LSTM), Recurrent Neural Network (RNN), Anomaly Detection, Cybersecurity

Production Risk Assessment of Premium Melon Farming in Greenhouse Systems: Evidence from Semarang City

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Abstract:

Premium melon is a melon variety cultivated in a greenhouse system and boasts superior quality characteristics, including uniform fruit shape, a consistent sweet taste, and a higher selling price compared to conventional melon varieties. Greenhouses serve as both a protective structure and a means of microclimate control to create optimal environmental conditions for plant growth. However, the cultivation of premium melons still faces challenges in the form of potential losses and crop failure due to production risks. These risks can stem from several production factors, such as seeds, fertilizers, pesticides, labor, and microclimate variables, particularly fluctuating temperature and humidity. This research was conducted at two cultivation sites, the Aisyah Farm Greenhouse and Arfa Farm in Semarang City, from January to October 2025. The research objectives included: (1) analyzing the level of production risk in two different greenhouses in Semarang City; and (2) comparing the levels of production risk between the two research sites. The study used a case study method with purposive sampling, while data analysis was conducted descriptively and quantitatively using standard deviation calculations, the Coefficient of Variation (CV), and the House of Risk (HOR) method. The results of the study indicate that the production risk level based on the KV value at Arfa Farm is classified as very high, at 25.185%, while at Aisyah Farm it is classified as low with a value of 4.91%. Through risk identification using HOR, four priority risk agents and six mitigation strategies were obtained at Arfa Farm, as well as eight priority risk agents and five risk mitigation strategies for premium melon cultivation at Aisyah Farm.

Index Terms:

Coefficient of Variation, Greenhouse, House of Risk, Premium Melon, Strategy of Risk Mitigation

The Silent Toll of Digital Assessment: A Systematic Literature Review on Techno-Anxiety and Emotional Friction in Modern Testing Environments

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Abstract:

As standardized testing systems migrate to digital platforms globally, the primary focus of learning environment research has remained largely on hardware readiness and psychometric equivalence. However, this transition has birthed complex psychological ecosystems where modern “cutting-edge” assessment formats and invasive digital surveillance systems produce unrecognized emotional friction. This systematic literature review investigates the phenomenon of “techno-anxiety” within computer-based assessments, shifting the focus from generalized computer anxiety to the specific, biopsychological stressors induced by digital testing interfaces. Adhering to the PRISMA 2020 guidelines, we systematically analyzed 42 empirical and theoretical studies published between 2020 and 2025, indexed in Scopus and Web of Science. The rigorous methodological quality of this review is demonstrated through strict eligibility criteria and structural quality assessments of the included corpus, ensuring high internal validity. The review synthesizes the multifaceted nature of techno-anxiety into a coherent framework highlighting three primary catalysts: format complexity (e.g., Multiple Choice Multiple Answer), interface obtrusiveness, and non-human systemic surveillance. The findings reveal that current Learning Environment Research (LER) instruments systematically fail to capture this digitized emotional friction, often misdiagnosing tech-induced cognitive overload as poor academic proficiency. By delineating these specific friction points and contrasting them against legacy theories like the Technology Acceptance Model (TAM), this paper offers a foundational blueprint for developing more holistic measurement tools, such as the proposed Digital Assessment Learning Environment Scale (DALE-S). Ultimately, this research aims to foster more equitable, sustainable, and psychologically secure digital testing environments.

Index Terms:

Techno-Anxiety, Digital Assessment, Emotional Friction, Learning Environment Research, Sustainable Learning, Cognitive Load, Measurement Invariance, Rasch Model

The Role of Parental Involvement in Shaping Psychological Adjustment Among Primary School Children: A Narrative Review

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Abstract:

Children's psychological adjustment during the primary school years is critical for long-term mental health, social functioning, and academic success. Parental involvement has been widely associated with positive child outcomes. However, existing findings remain fragmented, conceptually diverse, and often focused on academic achievement rather than psychological adjustment. This narrative review synthesizes empirical literature published between January 2015 and July 2025 to examine the role of parental involvement in shaping psychological adjustment among primary school children, with a particular focus on identifying key forms of parental involvement, underlying mechanisms, contextual influences, and gaps in the current literature. The synthesis highlights parental involvement as a multidimensional construct encompassing home-based involvement, school-based involvement, and relational quality, which includes parental warmth, acceptance, and autonomy support. Findings consistently indicate that relational quality of involvement is a stronger predictor of children's psychological adjustment than mere quantity of time spent. Moreover, relational quality serves as a key generative mechanism that enhances the effectiveness of both home- and school-based involvement. This mechanism often mediates the impact of involvement through children's self-regulation, school engagement, and perceived parental acceptance, with evidence suggesting particularly strong effects when fathers are actively involved. The implications for practice, policy, and future research are discussed.

Index Terms:

Parental Involvement, Psychological Adjustment, Primary School Children, Family-School Partnership, Internalizing And Externalizing Problems

The Application of Generative AI in Pedagogy: Enhancing Students' Confidence and Participation

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Abstract:

The new epoch, with the rise of AI, Machine Learning, and other cutting-edge technologies, has ushered in both opportunities and challenges for students and tutors. This tendency both calls and requires the younger generation and future citizens to develop advanced technological competencies. (Ng et al., 2023; Mittal et al., 2024) To cater to the digital world and better coordinate with the megatrend, the European Commission in 2022 has already proposed and released the guideline documents, which particularly highlighted the Digital Competency for Educators (European Commission Joint Research Centre, 2022).

For the students growing and learning skills reshape procedure, with the update of the new technology, particularly in modern society, the Generation Z and following generations have already possessed various integrated abilities. For example, fundamental coding skills, using artificial intelligence for auxiliary purposes, and using critical thinking to challenge something were once regarded as granted (Kirschner et al., 2017; Zeeshan et al., 2024). To discuss how and to what extent AI competency and usage should be integrated, it is essential to clarify and define the terms.

Additionally, the AI used in education, pedagogy, is even closely aligned with each country's national security and strategy. In this case, understanding the megatrend and frontier research on Generating Artificial Intelligence (GAI) can be especially significant. The author, in Chapter 2, specifically imports various policy documents and blueprints/white papers for a critical synthesis. Hereby, take reference from the national AI strategy and combine it with each country or region's own traits, ushering in a transformative new standard and a key shift in the educational landscape, should it become a valuable and contributive topic.

Integrated Assessment of Microbiological Quality, Lead Contamination, and Food Safety Practices of Fried Tempeh (Mendoan), a Traditional Indonesian Food, in University Canteens

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Abstract:

Food safety monitoring is indispensable to ensure that the food produced remains safe, hygienic and of good quality because unsafe food can cause foodborne diseases and affect the productivity of human beings. This study aimed to evaluate food safety of mendoan products in canteens around faculties of Diponegoro University cluster of science and technology based on food safety score (SKP), total plate count (TPC), and lead contamination. The design of this study was cross sectional and involved 10 canteens that were selected by purposive sampling. The object of this study is mendoan products served in the canteen that might have potential risk. Data collection instruments include questionnaires of food handler characteristics, SKP forms, TPC, and lead contamination tested qualitatively with a rapid plumbum test kit. Statistical analysis was performed univariate and bivariate using Spearman correlation test. The result showed that 2 canteens had food safety score of mendoan products in the middle category (range 0,9555–0,9036) while 8 canteens had SKP of mendoan products in the category of vulnerable but still safe for consumption (range 0,6592–0,9036). The total plate count showed that 3 mendoan samples had a total plate number exceeding the BPOM maximum limit (range $3,4 \times 10^5$ – $1,3 \times 10^6$ CFU/g). The test result also showed that all of mendoan products in canteens were negative for lead contamination. Food safety of mendoan products in canteens around faculties of Diponegoro University cluster of science and technology is safe for consumption but still has potential risk of contamination either biologically, chemically and physically.

AI Outfit Generation Using Diffusion Models and Personalized Fashion Recommendation Using Cosine Similarity

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Abstract:

The fashion and e-commerce industries increasingly demand intelligent systems that can provide personalized and creative outfit recommendations to improve customer engagement and satisfaction. Conventional recommendation approaches, such as collaborative filtering and basic content-based filtering, are limited in their ability to capture individual stylistic preferences and evolving fashion trends. To address these challenges, this paper presents an AI-driven framework that integrates generative modeling with personalized recommendation. The proposed system leverages Stable Diffusion models to generate realistic and aesthetically consistent outfit combinations, enabling dynamic content creation beyond predefined catalogs. In parallel, a personalized recommendation module employs cosine similarity on user interaction histories and item embeddings to deliver context-aware suggestions aligned with individual preferences. The system is deployed using Streamlit, providing an interactive interface for users to explore generated outfits and receive tailored recommendations in real time. Experimental analysis demonstrates that this combined generative-recommendation approach enhances personalization, improves recommendation accuracy, and introduces novelty in outfit design, thereby bridging the gap between user expectations and system capabilities. The system combines cosine similarity with additional scoring using Euclidean-distance to enhance better ranking. Outfit generation is performed using a pretrained Stable Diffusion model and optional CLIP scoring that is used to increase the correspondence between generated images and text prompting.

Index Terms:

Outfit Generation, Fashion Recommendation, Stable Diffusion, Cosine Similarity, Deep Learning, Generative Models, Personalized Systems, E-Commerce

Perception of Climate Change Problems in the Amazon Among University Students in Loreto, Peru

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Abstract:

This work comprises a descriptive study of the perception of climate change in the Amazon among students of the Faculty of Educational Sciences and Humanities at the National University of the Peruvian Amazon (UNAP) in Loreto, Peru. In the last three years, the Amazon has been the scene of various climate change events, such as the extreme droughts of 2023, as well as record fires in 2024 and floods in 2025. These events have caused a series of effects and impacts that are scarcely disseminated, monitored, and studied by governmental and academic entities throughout South America.

Among the factors limiting the understanding of climate change in university classrooms are the scarcity of projects related to climate change studies, as well as limitations inherent in curricula (often not contextualized to the Amazonian reality), and a lack of news sources covering these issues.

This study highlights the limited knowledge and understanding of the true scope of the climate change problem in the Amazon. Most students are unaware of the occurrences of climate change in the Amazon, nor its severity. Despite record figures, no projects or initiatives to improve the study, prevention, and resilience to climate change in the Amazon have emerged or been promoted.

Index Terms:

Climate Change, The Peruvian Amazon, Student Perceptions, University Education, Climate Resilience

Low-Cost Digital Tool for Teaching Supply Chain Optimization in Higher Education

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Abstract:

The increasing complexity of supply chain systems has intensified the demand for graduates who possess strong analytical and decision-making skills. However, access to advanced optimization software and enterprise systems remains limited in many higher education institutions due to cost and resource constraints. This paper demonstrates how low-cost and widely accessible digital tools, such as Microsoft Excel, can be effectively used to teach core concepts of supply chain optimization in higher education.

Adopting a conceptual and practice-based approach, the study examines Microsoft Excel with basic simulation capabilities and discusses how these tools can be integrated into teaching activities without relying on proprietary systems or real company data. A structured teaching framework is proposed to align learning objectives with tool selection, problem complexity, and expected learning outcomes. The proposed approach is demonstrated through a warehouse slotting optimization exercise, where students visualize SKU locations and analyze product movement patterns within a simplified warehouse layout.

The findings suggest that meaningful learning in supply chain optimization does not require sophisticated software, but rather well-designed problem scenarios and guided decision-making processes. This paper contributes to multidisciplinary education by offering practical guidance for educators seeking scalable and cost-effective methods to enhance analytical skill development in supply chain and operations management courses.

Index Terms:

Supply Chain Management, Operations Management, Supply Chain Education, Practice-Based Learning, Spreadsheet-Based Modeling, Decision-Making Skills, Higher Education Teaching, Operations Optimization

Neurosign: A Realtime Browser-Based Sign Language Translation System

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Abstract:

Automatic sign language translation systems play a critical role in improving accessibility for individuals with hearing and speech impairments. This paper presents NeuroSign, a real time browser based sign language translation system that uses MediaPipe skeletal tracking and lightweight machine learning algorithms. Unlike conventional approaches that rely on heavy convolutional neural networks operating on raw image frames, the proposed system extracts 21 hand landmarks and processes normalized coordinate features. A hybrid recognition framework combining K Nearest Neighbors (KNN) for static gestures and Dynamic Time Warping (DTW) for dynamic gesture sequences is employed. Experimental results demonstrate that the proposed system achieves recognition accuracy above 94% while maintaining end to end latency below 120 ms. The architecture enables scalable deployment of sign language translation systems in web environments without requiring specialized hardware.

The Importance of Plants In Human Life and Their Representation in German Phraseology

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Abstract:

This article is devoted to the comprehensive study of the significance of plants in human life and their representation in German phraseology, with particular attention to their linguocultural and symbolic roles. Plants occupy a central position not only in ecological and aesthetic contexts but also in language, where they function as rich sources of metaphorical and idiomatic expressions. By examining a wide range of German phraseological dictionaries, monographs, and scholarly articles, the study investigates idioms and fixed expressions that incorporate plant components such as Palme, Kohl, Bohne, Holz, Weizen, Blume, Spargel, Salat, Spinat, Sellerie, Kresse, Kerbel, Sauerampfer, Baldrian, Teeblätter, Tomate, Hopfen, Kürbis, and others. The research employs etymological, comparative, componential, and semantic methods to analyze the structure, meaning, and cultural connotations of these expressions. The findings reveal that plant elements in German phraseology often serve as metaphoric tools to describe human behavior, social interactions, moral principles, and emotional states. Moreover, these phraseological units reflect cultural attitudes toward nature and demonstrate how flora-based imagery is embedded in German collective consciousness. The study underscores the importance of plants as linguistic and cultural symbols and suggests that such analyses can contribute to applied linguistics, German language teaching, and a broader understanding of cross-cultural phraseology.

Index Terms:

Floral Component, Dendrocomponent, Phraseologism, Linguoculturology, Symbolic Meaning, Phytonym

Postmodernism In literature, Its Origin, Characteristics and Peculiar Features

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Abstract:

This paper explores the phenomenon of postmodernism in literature as a reaction to modernist ideologies and social transformations of the twentieth century. The study aims to examine its historical origins, theoretical foundations, and key stylistic features, including fragmentation, metafiction, intertextuality, irony, and pastiche. The research employs a comparative literary-historical method combined with textual analysis of representative postmodern works by authors such as Thomas Pynchon, Don DeLillo, Italo Calvino, and Margaret Atwood. Data were collected from primary texts and secondary sources published in the last five years to ensure scholarly relevance. Postmodern authors create works through metafiction, intertextuality, irony, fragmentation, deconstruction of narrative and pastiche. The findings demonstrate that postmodern literature rejects universal narratives and fixed meanings, emphasizing plurality, playfulness, and reader participation. The results also reveal that postmodern aesthetics mirror the instability of truth and identity in late-capitalist societies. The study concludes that postmodernism, while deconstructing traditional narrative authority, opens new ways of understanding the language, representation, and cultural diversity. Its implications extend beyond literary criticism to broader discussions of knowledge, ideology, and the human condition in the twenty-first century. In literary studies, postmodernism has thus become a key paradigm for understanding the late twentieth century's intellectual and cultural shifts.

Index Terms:

Postmodernism, Metafiction, Intertextuality, Fragmentation, Deconstruction

Acknowledgement

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Problems of Translation of Neologisms in the English Media to the Uzbek Language

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Abstract:

This article presents the results of research in the Republic of Uzbekistan on the creation of analysis of the process of introducing neologisms into a foreign language, the semantic features of the neologisms of the English-language media, pragmatic functional features that reflect the adaptation of new words obtained in the course of information exchange to the terminology of the Uzbek language are revealed on the basis of their entry into polysemantic and synonymous relations. by determining the grammatical features of English media neologisms and the factors of the methodical use of English media neologisms in the compared languages, the ability of media neologisms to enrich the language system of the language and limit new concepts in the language to nominative elements is proved. by identifying the presence of stable terms used internationally, and the reasons for the emergence of neologisms based on them, as well as functional-semantic, grammatical and stylistic similarities and differences between English-language media neologisms, it was revealed that neologisms serve to eliminate the situation of inadequacy in translation based on equivalence techniques, generalizations and adaptations. The studies were conducted on the effectiveness of using lexical transformations in their adequate translation is proved by identifying the difficulties of translating foreign words that have become a "linguistic fashion" and can increase the authority of the national language.

Index Terms:

Neologisms, Adaptations, Generalizations, National Language, Equivalence, Adequate Translation

Acknowledgement

This work was supported by the Ministry of Agriculture of the Republic of Uzbekistan and Tashkent State Agrarian University

Automated Pulmonary Emphysema Detection using Deep Learning

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Abstract:

Pulmonary emphysema, a key component of Chronic Obstructive Pulmonary Disease (COPD), involves the irreversible destruction of alveolar walls, leading to air trapping and reduced lung function. This paper presents an automated detection system for emphysema using deep learning techniques, specifically a Convolutional Neural Network (CNN) based on ResNet-50 architecture. The model analyzes 2D slices from chest CT scans to identify emphysematous patterns such as low-attenuation areas and textural irregularities. Unlike traditional methods relying on manual feature extraction like density thresholding or texture analysis, our approach employs transfer learning from ImageNet-pretrained weights to achieve end-to-end classification without extensive retraining. Features are extracted hierarchically through convolutional layers, with residual connections preserving gradient flow for deeper networks. The optimization uses a combined binary cross-entropy and Dice loss function, balanced by a weighting factor $\lambda=0.5$, and trained with the Adam optimizer at a learning rate of 0.001 over 100 epochs. Experimental results on the NETT dataset demonstrate superior performance with 94.2% accuracy, 93.5% sensitivity, and 0.97 AUC, outperforming baseline methods and enabling early diagnosis for improved clinical outcomes. This framework supports real-time inference, making it suitable for integration into radiology workflows and reducing inter-observer variability.

Index Terms:

Pulmonary Emphysema, Deep Learning, Convolutional Neural Network, ResNet-50, Chest CT Imaging, Automated Detection

Artistic Image Generation using Neural Style Transfer

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Abstract:

Neural Style Transfer (NST) refers to a deep learning method that produces artistic images through a combination of content and style of another image. This paper is an artistic image generating system that works on an arbitrary style transfer model that is built around an already trained Convolutional Neural Network, which is VGG19. The suggested solution supports several invisible styles with effective feedforward inferencing, unlike the conventional techniques that involve retraining whenever the style changes. Content and style features have been mined out of various network layers and optimized loss function is used to trade content integrity and aesthetic appearance. Visual appeal of aesthetically pleasing stylized images achieved through experimental results, but structural integrity is preserved, indicates that neural style transfer is useful in creative and digital art applications.

Index Terms:

Neural Style Transfer, Arbitrary Stylization Model, Deep Learning, Convolutional Neural Network, VGG19

Trip Budget Prediction and Optimization using Machine Learning and Meta-Heuristic Scheduling

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Abstract:

Travel planning refers to juggling a lot of things simultaneously to maintain the costs low, have more experiences, and fit all things within a narrow timeframe. Although previous researchers have completed investigations on budget prediction or travel planning individually, only a few of them have integrated cost prediction with travel plan development in a single system. This paper introduces a two-step solution that combines both of them through using machine learning and rule-based estimation to estimate the cost of trips and genetic algorithm to design the travel schedule. The overall cost of the trip goes into accommodation, transport, food, and activities. All types of costs are forecasted based on integrated prediction models that put into consideration the destination, dates of travel, and traveler selections. On these cost estimates, an individualized genetic algorithm constructs travel plans that attempt to provide the optimal experience within the budget and accessible time. An experiment performed on 2,847 actual trip records indicates that this method yields higher precision when predicting costs by 18.3 percent than simple methods. The itinerary planning approach also enhances a higher satisfaction of travellers by 23.7 per cent as compared to mere planning approaches. All in all, the combined system can remain within the planned budget in 95 percent of various travels.

Mid Day Meal Logistics

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Abstract:

Effective meal distribution is critical in the effectiveness of Mid-Day Meal Scheme in India. One of the main implementing partners, the Akshaya Patra Foundation (TAPF) lacks the ability to make sure that cooked food arrives to thousands of schools on time amid traffic and distance issues, as well as the lack of resources. The following paper suggests the use of the intelligent optimization of the logistics system, which employs the Ant Colony Optimization (ACO) algorithm to compute the most optimal delivery of meal delivery vehicles. The system reduces the distance of travel, delivery time, and fuel usage by simulating dynamically pheromone-based decision processes which is based on the real ant behavior. The findings indicate that ACO is superior to conventional heuristics in speed of delivery and cost-effectiveness of meals.

Index Terms:

Mid-Day Meals, Logistics Optimization, Ant Colony Optimization, Vehicle Routing, Akshaya Patra, Route Efficiency.

Intelligent Plant Disease Detection and Fertilizer Advisory System

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Abstract:

Agriculture plays a vital role in the Indian economy and supports the livelihood of millions of farmers. However, crop productivity is often affected by plant diseases, improper fertilizer usage, and poor crop selection based on soil and environmental conditions. Early disease detection and proper agricultural guidance are essential to reduce crop losses and improve productivity. This work proposes Crop Cure (Agri Predict), an intelligent smart agriculture system that uses Artificial Intelligence, Machine Learning, and Deep Learning techniques to assist farmers in making better farming decisions. The system detects plant diseases at an early stage by analyzing crop leaf images using a deep learning vision model. After identifying the disease, the system provides detailed disease information including symptoms, causes, and recommended fertilizers or treatments using a language model. In addition, the system includes crop recommendation and crop yield prediction modules that analyze soil nutrients such as nitrogen, phosphorus, potassium, and pH along with environmental factors like temperature, humidity, and rainfall. Machine learning algorithms such as Decision Tree, Random Forest, and regression models are used to generate accurate predictions. The application is implemented as a web-based platform with a user-friendly interface, multilingual support, and location-based services for finding nearby fertilizer shops. Experimental results show that the proposed system effectively detects crop diseases and provides reliable recommendations for crop selection and yield prediction. Overall, Crop Cure acts as a digital assistant for farmers, helping reduce crop losses, improve productivity, and support sustainable agricultural practices.

