WCMRI
17-18 July 2025 | Singapore

WCMRI 2025

4th World Conference on Multidisciplinary Research & Innovation

17th–18th July, 2025 Singapore

Organized by: IFERP Academy

IFERP Academy
Explore Your Research Journey...

4th World Conference on Multidisciplinary Research & Innovation (WCMRI-2025), Singapore

ISBN: 978-93-92104-84-8

This edition is produced in India and is intended for worldwide distribution. However, no part of this publication may be exported without the prior permission of the publisher, IFERP Academy-India.

Table of Contents

Conference Theme

“ Synergizing Science and Innovation for a Sustainable World ”

Preface

We are delighted to extend a warm welcome to all participants attending 4th World Conference on Multidisciplinary Research & Innovation (WCMRI-2025), taking place in Singapore on 17th & 18th July, 2025. 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 & Innovation. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for WCMRI-2025 contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of Research & Innovation. 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 & Innovation 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 WCMRI-2025.

Since April 2025, the Organizing Committees have received more than 50+ manuscript papers, covering all aspects of WCMRI-2025. After review, approximately 15+ papers were selected for inclusion in the proceedings of WCMRI-2025. 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.

ISBN: 978-93-92104-84-8

About WCMRI-2025

One of the primary motives of the World Conference on Multidisciplinary Research & Innovation (WCMRI-2025) to be held in Singapore on the 17th & 18th of July 2025 is to spur unique discoveries in terms of countering conventional challenges faced in everyday engineering activities and technologies. Technology is progressing at a very fast pace, which currently is weighing heavily on the earth's bounty of natural resources and causing serious damage to the environment. The price for this large-scale and mass expansion in all forms of daily life is being paid for in the form of climate change.

Today, dangerous pollution levels and global environmental degradation endanger the very existence of life on our planet. Now, more than ever, there is an urgent need for professionals from all sectors of engineering and science to come together and work together to find sustainable solutions to sustain economic growth without harming the environment in any way whatsoever.

Purpose of the Conference

" Synergizing Science and Innovation for a Sustainable World "

At WCMRI-2025, we aim to create a dynamic platform for scholars, researchers, educators, industry professionals, and students from diverse disciplines. The conference serves as a nexus for sharing innovative ideas, groundbreaking research, and collaborative efforts that transcend traditional boundaries. By bringing together experts and enthusiasts, we seek to catalyze the transformation of ideas into tangible impacts that contribute to the advancement of knowledge and address global challenges.

Objective of the Conference

WCMRI is committed to cultivating a dynamic environment that thrives on multidisciplinary collaboration. By fostering connections among individuals and teams from diverse disciplines, the conference becomes a melting pot of ideas and methodologies. WCMRI's dedication to innovation promotion further amplifies this collaborative spirit, creating a platform to showcase and discuss transformative ideas with the potential to make a significant impact.

In addition to intellectual exchange, WCMRI prioritizes networking opportunities as a cornerstone of the conference experience. Participants are provided with ample occasions to connect with peers, mentors, and potential collaborators, fostering a community that extends beyond disciplinary boundaries. Through workshops and sessions, researchers and professionals can hone their skills, ensuring they are equipped with the tools necessary to contribute meaningfully to the multidisciplinary landscape

ISBN: 978-93-92104-84-8

About IFERP Academy

IFERP Academy stands at the forefront of promoting innovation, collaboration, and knowledge dissemination in the fields of engineering, science, technology and more. As a professional association, IFERP is dedicated to advancing the academic and industrial landscape through various initiatives.

At its core, IFERP drives change and progress through various initiatives designed to foster cross-disciplinary exchange, empower researchers and professionals, and thus contribute significantly to the evolution of these fields. Through strategic partnerships, conferences, workshops, and publications, IFERP continues to shape a future where cutting-edge ideas, collaborative endeavors, and insightful knowledge flourish.

What We Do?

- We encourage convenient access to academic resources and support for all the aspirants and research scholars in urban and rural areas.
- IFERP Academy 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 Academy is dedicated to inquisitiveness, innovations and recent trends and developments in the field of Engineering & Technology.
- IFERP Academy 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.

ISBN: 978-93-92104-84-8

From IFERP's Director

Mr. Siddth Kumar Chhajer

MD & Founder,
IFERP, Technoarete Group

It's an honor to welcome you all to the WCMRI 2025!

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 4th World Conference on Multidisciplinary Research & Innovation (WCMRI-2025) 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 & innovation.

This conference creates solutions in different ways and to share innovative ideas in the field of research & innovation. WCMRI-2025 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.

4th International Conference on Engineering, Social-Sciences and Humanities (WCMRI-2025) will explore the new horizons of innovations from distinguished Researchers, Scientists and Eminent Authors in academia and industry working for the advancements in Science and Engineering from all over the world. WCMRI-2025 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of research & innovation.

ISBN: 978-93-92104-84-8

From IFERP's Chief Executive

Mr. Rudra Bhanu Satpathy

CEO & Founder,
IFERP, Technoarete Group

We're thrilled to have you all join us for the WCMRI 2025!

IFERP Academy is hosting the 4th World Conference on Multidisciplinary Research & Innovation (WCMRI-2025) this year in month of July, 2025. The main objective of WCMRI-2025 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.

ISBN: 978-93-92104-84-8

Exclusive Keynote Speaker

Dr. Siva Mahendran

Professor
Department of English
Curtin Singapore
Singapore

Prof. Dr. Sivarajasingam Mahendran is a distinguished educator, mentor, and speaker with over three decades of experience in teaching, training, and research. A recipient of a Commendation Award for Workplace Literacy Training, he has dedicated his career to advancing adult education, language literacy, and learner development across diverse educational and workplace settings.

With a strong academic background that includes a Doctorate in Education (cum laude), a Postgraduate Diploma in Coaching and Mentoring for Workplace Learning, and numerous professional certifications, Prof. Mahendran is recognized for his excellence in training delivery, research, and pastoral care. His work spans primary, secondary, and tertiary institutions as well as adult learning centres, where he has developed curricula, authored learning texts, and presented at conferences locally and internationally.

As an Associate Adult Educator with Singapore's Institute of Adult Learning (IAL), he is deeply committed to lifelong learning and continuous improvement. His core competencies include communication skills, performance coaching, mentoring, curriculum planning, and leadership training. He has also served as a panel moderator, examiner, counsellor, and academic advisor, contributing to thought leadership in the field of education.

Prof. Mahendran is a published researcher, poet, and journal reviewer, and has been featured in the Successful People in Singapore Encyclopaedia (2023). His inclusive and inspiring approach continues to impact learners, educators, and professionals alike.

ISBN: 978-93-92104-84-8

Keynote Speaker

Dr. N. S. Sivakumar

Adjunct Professor, Aizu University of Technology, Aizuwakamatsu, Fukushima, Japan &
Research Professor, Universitas Nusa Putra, West Jawa, Indonesia

Dr. Sivakumar Nallappan Sellappan has a Bachelor's degree in Mechanical Engineering from CSI College of Engineering and a Master's degree in Production/Industrial Engineering from PSG College of Technology. He earned his Ph.D. in Aerospace Materials from Anna University.

With extensive working experience at international universities and professional bodies across Japan, Hong Kong, Singapore, Indonesia, and Middle Eastern countries, Dr. Nallappan has a broad vision for global collaborations in faculty and student exchange, internships, and research activities. He serves as an advisor to global universities and industries on curriculum development and consultancy activities.

His areas of expertise include:

- Structural Dynamics
- Vibration
- Automotive Design
- Thermodynamics

Dr. Nallappan has published more than 40 articles, Books and Patents in reputed International Journals and Conferences. His areas of research interest include Sustainable Composite materials, Implementation of IoT, Machine learning, and AI in Fluid transportation and Bio mass energy conversion.

ISBN: 978-93-92104-84-8

Keynote Speaker

Dr. Tarik A. Rashid

Professor in Computer Science/Artificial Intelligence, Director of the Centre for Artificial Intelligence and Innovation Dean of the School of Science and Engineering, University of Kurdistan Hewler Iraq

Tarik Ahmed Rashid is a Principal Fellow of the Higher Education Academy (PFHEA-UK) and a Professor of Computer Science and Engineering at the University of Kurdistan Hewlêr (UKH), Iraq, where he also serves as the Director of the Artificial Intelligence and Innovation Center. He completed his Ph.D. in Computer Science and Informatics at University College Dublin (UCD), Ireland, followed by a Post-Doctoral Fellowship in the same institution. His research spans Artificial Intelligence, Nature-Inspired Algorithms, Machine Learning, Computational Intelligence, and DNA Computing, with contributions to metaheuristic optimization. He has developed multiple optimization algorithms (FDO, FOX, SHOA, etc.) and machine learning techniques (Artificial Liver Classifier (ALC), Foxtsage). Recognized among the Top 4 researchers in Iraq (2019–2023) and listed in Stanford University's "World's Top 2% Scientists" (2021–2024), he has 140+ Scopus and Web of Science-indexed publications, including books and book chapters with Springer, Elsevier, and CRC. He is a keynote speaker, journal editor, and IEEE/MIR Labs member, actively contributing to international conferences as a chair and program committee member.

ISBN: 978-93-92104-84-8

Keynote Speaker

Dr. Subhas Chandra Mukhopadhyay

Director of International Engagement,
School of Engineering, Professor of
Mechanical/Electronics Engineering
Macquarie University, Australia

Dr. Subhas Chandra Mukhopadhyay (M'97, SM'02, F'11) currently is working as a Professor of Mechanical/Electronics Engineering with the School of Engineering, Macquarie University, NSW 2109, Australia. He is the Discipline Leader of the Mechatronics Engineering Programme. He is also the Director of International Engagement for the School of Engineering. His fields of interest include Sensors and Sensing Technology, Instrumentation, Wireless sensor networks, Internet of Things, Mechatronics and Robotics, Drones etc. He has authored/co-authored 14 patents, 10 books, over 450 papers in different international journals, conferences and book chapter. He has edited eighteen conference proceedings. He has also edited forty special issues of international journals as guest editor and fifty books. He is a FIEEE (USA), a FIET (UK) and a FIETE (India). He is a Topical Editor of IEEE Sensors journal, an Associate Editor of IEEE Transactions on Instrumentation and Measurements and an Associate Edior of IEEE Review of Biomedical Engineering. He is EiC of S2IS journal and Series Editor of Smart Sensing, Measurements and Instrumentation, Springer-Verlag. He was the Founding Chair of the IEEE Instrumentation and Measurement Society New South Wales, Australia Chapter and currently chair of the chapter. He is also the Founding Chair of the IEEE Sensors Council New South Wales, Australia Chapter. He was a Distinguished Lecturer of the IEEE Sensors Council 2017–2022. He has delivered 450 seminars, including keynote, invited, tutorial and special talks. He has organized over 20 international conferences either as General Chair or Teachnical Programme Chair. He has organized the IEEE Sensors Conference 2009 at Christchurch, New Zealand as General Chair and 2021 in Sydney as General Co-chair.

ISBN: 978-93-92104-84-8

Keynote Speaker

Dr. Anuj Kumar Gupta

Director Principal
CGC College of Engineering
Mohali, Punjab, India

Dr. Anuj Kumar Gupta is working as Director Principal at CGC College of Engineering, Mohali (Punjab), India. He is a PhD in Computer Science & Engineering with a vast academic & administrative experience of 24 years. He has guided 27 PG & 10 PhD research scholars so far. He has published more than 120 research papers in reputed international & national journals and conferences. His area of research is Wireless Networks & Security. He has filed more than 10 patents with 1 patent granted and published 5 books. He is an active member of review board of Elsevier, IEEE, Springer, IGI Global and many more reputed research agencies. He is a life member of Computer Society of India, ISTE & many more.

ISBN: 978-93-92104-84-8

Keynote Speaker

Mr. Dharnisha Narasappa

Sr. Network Architect
Versa Networks USA

Dharnisha Narasappa is a Sr. Network Architect at Versa Networks United States with 20+ years of global experience in Cyber Security, Network Specialty-CCIE# 46979, Network Architecture, Network Security Design, Network Implementation, and Network troubleshooting across multiple market verticals and industry sectors including Enterprise, Data center and Service Provider, and IOT network. Dharnisha has led the successful usage and adoption of architecture, design, test, implementation, integration, and migration of Cybersecurity solutions, He holds the ability to scale products and drive the adoption in the customer's environment on Multi-protocol/Multi-Vendor Enterprise, Data Center and IOT. Dharnisha has Led a transformative initiative in Cybersecurity, AI cybersecurity, secure SD-WAN and SASE solutions, Identifying Client Requirements, Develop Innovative Solutions, Drive Transformation in cybersecurity architect, design, and implementation at industry leaders like Cisco Systems, Mayo clinic, Versa Networks and Exxon to achieve the best possible outcomes for the customer. Dharnisha's expertise lies in architecture and implementation in Cyber Security solutions for an Enterprise, Data Center, Service provider and industrial IoT customers. Resulting in 80% reduction in infrastructure cost and 70% increase in system reliability, Dharnisha managed the implementation of a data migration strategy for clients resulting in a 70% reduction in data loss and 60% increase in system efficiency with operational excellence. Dharnisha holds a strong focus on building high- performing teams and delivering impactful technology solutions. Dharnisha Narasappa holds a B.Tech in University BDT College of Engineering from Visvesvaraya Technological University (VTU)., As a professional member of CCIE, IEEE, CSA and RSA, he actively contributes to the research community through technical publications, peer reviews, hackathons, and industry conferences. His contributions to Cybersecurity, Network Architecture, Network Implementation has been recognized with multiple journal publications, including an international IEEE conference and RSA conference.

ISBN: 978-93-92104-84-8

Keynote Speaker

Dr Sathish Kumar Selvaperumal

School of Engineering
Asia Pacific University of Technology and Innovation
Kuala Lumpur, Malaysia

Assoc. Prof. Ts. Dr. Sathish Kumar Selvaperumal is an accomplished academic and researcher currently serving as the Academic Leader (Deputy Dean) at the School of Engineering, Asia Pacific University of Technology and Innovation (APU), Kuala Lumpur, Malaysia. He holds a PhD in Image Processing from SCSVMV University and is a Chartered Engineer (C.Eng) certified by the Institution of Engineers, UK. With over two decades of experience in academia and industry, Dr. Sathish has held several key roles, including Program Leader for Telecommunication Engineering and Diploma in Electrical & Electronic Engineering, as well as Final Year Project Manager and Outcome-Based Education (OBE) Coordinator. He has a strong research background in areas such as Wireless Sensor Networks, Cognitive Radio, Image & Speech Processing, Artificial Intelligence, Biomedical Applications, Robotics, and Sustainable Technologies. Dr. Sathish has actively contributed to over 100 publications and served as a reviewer and committee member for numerous international conferences. He has also acted as an R&D consultant for more than 20 successful industrial projects and mentored students who have excelled in international competitions. Passionate about bridging research and societal needs, he continues to pursue innovative solutions for real-world challenges.

ISBN: 978-93-92104-84-8

Keynote Speaker

Dr. J. Somasekar

Professor and Program Head,
Department of CSE (AIDD),
JAIN (Deemed-to-be University),
Bangalore, India

Dr. J. Somasekar received a Ph.D. degree in Computer Science and Engineering (CSE) from JNTUA, Andhra Pradesh, and an M.Tech. degree from the National Institute of Technology Karnataka (NITK), Surathkal. Additionally, he has completed a Postdoc at the University of South Florida, USA. He is currently serving as a Professor in the CSE Department at JAIN University, Bangalore, and also Head of the CSE (AI-Driven DevOps) program. He was appointed as a Research Fellow at INTI International University, Malaysia in 2024. He has guided two PhD scholars and is currently guiding six PhD research scholars in the CSE department. His research interests include Machine Learning, Image Processing, Data Science, and ML for Cybersecurity. As a resource person, he has delivered 220 Invited Talks (Technical Talks) for FDPs, Workshops, STTPs, and Webinars sponsored by AICTE ATAL/ ISTE /DST /UGC /CSIR, in 13 states within the country and in five other countries. With over 18 years of teaching experience and 6 years of research experience, he has published more than 40 research articles in leading journals indexed in SCI & SCOPUS, along with seven international textbook chapters indexed in SCOPUS and authored three textbooks. Additionally, he serves as a reviewer for reputed international journals and conferences, acts as a session chair for international conferences, and has been a guest editor for three journals. He achieved an All India Rank of 43 in the GATE exam and received the GATE Scholarship, sponsored by the Ministry of Education, Government of India. He has been honored with the 'Innovative Collaborative Researcher' award in Medical Imaging for his collaborative research with Dr. Ching-Hao Lai, Director of ITRI, Taiwan, presented by the WRC in association with the United Medical Council. Additionally, he has been recognized with the Best Outstanding Speaker award and several Best Paper awards at conferences. As a convener/coordinator, he has organized and conducted various national and international events. Furthermore, he served as a visiting professor for the Data Science and Data Analytics PG program at Kannur University, Kerala, and also a visiting professor at FIBS, Nigeria.

ISBN: 978-93-92104-84-8

Keynote Speaker

Dr. Teik-Cheng Lim

Head, PhD (Engineering) and Master of Engineering Programmes,
School of Science and Technology,
Singapore University of Social Sciences,
Singapore

Professor Dr. Alan Lim Teik-Cheng is a distinguished academic at the Singapore University of Social Sciences (SUSS). He earned both his B.Eng (Hons) and Ph.D. degrees from the National University of Singapore. Since joining SUSS in 2007, he has taken on various key academic roles, including Programme Head for the Ph.D. (Engineering) and Master of Engineering programmes. With over two decades of academic and research experience, Professor Lim has also served as an external examiner for doctoral and master's theses at institutions such as The Hong Kong Polytechnic University, University of Malta, and NIT Calicut. Professor Lim's research focuses primarily on mechanical metamaterials—particularly auxetic structures and composites. He has authored several scholarly books, including Auxetic Materials and Structures (Springer, 2015) and Mechanics of Metamaterials with Negative Parameters (Springer Nature, 2020). He has published extensively in international journals and is actively involved in academic service as a journal reviewer, curriculum evaluator, and conference programme chair. He is also affiliated with professional bodies such as the Institution of Engineers Singapore (IES), International Association of Engineers (IAENG), and American Society of Mechanical Engineers (ASME).

ISBN: 978-93-92104-84-8

Session Speaker

Dr. Abdul Rauf Ridzuan

Faculty of Communication & Media Studies, Universiti Teknologi MARA Cawangan Melaka, Malaysia

Abdul Rauf Hj Ridzuan is an associate professor at Universiti Teknologi MARA (UiTM) Melaka. A pioneer lecturer at the Faculty of Communication and Media Studies since 2006, Melaka and alumnus of the faculty with a major in Public Relations. He received his Ph.D. in Social Media at University Putra Malaysia (UPM). He has successfully published his research works in various indexed journals and conferences and actively participated and won several medals in numerous international innovation competitions. Furthermore, he also serves as a chief editor for the Malaysian Journal of Media and Society (MJOMS) and a reviewer of several reputable international journals. In 2019, he received 2 University Academic Awards: Most Promising Academician 2019 and most Prolific Writer. He also received 2 awards which were 'Rector Special Award for Journal /Proceeding Publication' and 'Rector Special Award for General Publication' in 2016. His research interests are on social media, sociology, public relations and education.

ISBN: 978-93-92104-84-8

Session Speaker

Dr. A. Sai Ramesh

Department of Biotechnology,
Prathyusha Engineering College,
Chennai, India

Dr. A. Sai Ramesh is an accomplished academician, researcher, and administrator, currently serving as the Head of the Department of Biotechnology at Prathyusha Engineering College, Tamil Nadu. With 32 publications, including book chapters and articles in reputed Scopus and SCI-indexed journals, his contributions span biotechnology, nanotechnology, and biomedical research. He is an active reviewer for prestigious journals and has been recognized with multiple awards for his research excellence. As the Joint Secretary of the Society of Chemical and Synthetic Biology (SCSB) and a member of professional bodies like SBTI, BRSI, and ISTE, he remains actively engaged in advancing scientific knowledge and collaboration. He has successfully secured multiple research grants from organizations like DBT CTEP and the Tamil Nadu State Council for Science and Technology. In addition to mentoring 23 B.Tech. final-year projects, he has organized impactful events, including workshops for school children and lecture series on natural products. Dr. Ramesh also fosters industry-academia partnerships, supports alumni engagement, and has contributed as a jury member in renowned competitions like TECHgium in the MedTech domain. His dedication to holistic education is further reflected in his advocacy for Universal Human Values (UHV), nurturing responsible and ethical professionals.

ISBN: 978-93-92104-84-8

Session Speaker

Dr. Hemin Ibrahim

Head of Cybersecurity,
Department Faculty of Science
Tishk International University,
Iraq

Hemin Ibrahim is an experienced AI researcher, software engineer, and IT leader with over 20 years of programming experience and a Ph.D. in Artificial Intelligence, a master's degree in Advanced Software Engineering, and bachelor's degree in Information Technology and another bachelor's degree in Mathematics. He specializes in machine learning, speech emotion recognition, robotics, and computer vision. His academic roles include heading the Computer Engineering Department at Komar University and the head of Cybersecurity Department at Tishk International University. Hemin's notable projects span developing AI-powered robots for therapy and business, creating popular mobile apps with millions of downloads, and designing and developing online systems and led major university IT and academic initiatives in Iraq and Malaysia. Hemin actively bridges complex technology concepts with practical business solutions, advocating digital advancement and education.

ISBN: 978-93-92104-84-8

Session Speaker

Dr. Alireza Mohammadi

Associate Professor
City Graduate School,
City University Malaysia,
Selangor, Malaysia

Associate Professor Dr Alireza is an experienced International Trade Advisor with a distinguished history of working in the business supplies and equipment industry. Skilled and interested in performance efficiency, social media marketing management, online engagement solutions, market research, brand loyalty studies, and cryptocurrency with a Doctor of Philosophy (PhD) in Business Economics and Marketing from Universiti Putra Malaysia. He achieved his MBA from Multimedia University Malaysia and Bachelor of Industrial Engineering Management from IAU-Iran. Currently, he is Business Management Lecturer, Head of Program for PHD Business Administration at City University Malaysia.

ISBN: 978-93-92104-84-8

Session Speaker

Dr. Nikolina Ljepava

Acting Dean – College of Business Administration, The American University in the Emirates (AUE), Dubai, United Arab Emirates

Dr. Nikolina Ljepava is a senior marketing professional and practice-oriented academic with extensive global experience. She joined AUE in 2015 where she served as a Department Chair of Management and MBA Program Director in the College of Business Administration. She has over 20 years of industry and academic experience spanning North America, Europe, and the United Arab Emirates. Dr Nikolina holds a Ph.D. in Marketing Research specializing in marketing research and analytics and major international professional qualifications in marketing: Chartered Marketer, Certified Digital Marketing Professional, and Fellow of the Chartered Institute of Marketing. Her professional and academic interests are related to AI applications in marketing and higher education, various aspects of digital transformation in marketing and business, human-technology interaction, and applied marketing research and analytics. Dr. Nikolina is a member of the International Public Relations Association (IPRA) Committee of Academics and Practitioners, creating Ethical Guidelines for using Artificial Intelligence (AI) in communications. She is a regular speaker at professional and academic conferences on marketing technologies, the future of marketing, education, and AI applications in marketing and education. Her professional experience includes consulting and management positions in marketing insights and analytics, digital transformation, and evaluation and assessment. Dr Nikolina conducted and supervised more than one hundred industry research and development projects as a director of research in the market and public opinion research agencies and as a market research consultant for different institutions and companies. She is the author of more than 60 peer- reviewed research publications and holder of various academic and research awards.

ISBN: 978-93-92104-84-8

Session Speaker

Ts. Dr. Rajermani Thinakaran

Faculty of Data Science and Information Technology,
INTI International University & Colleges,
Nilai, Negeri Sembilan, Malaysia

Assoc. Prof. Ts. Dr. Rajermani Thinakaran is affiliated with the Faculty of Data Science and Information Technology at INTI International University, Negeri Sembilan, Malaysia. As head of the Knowledge and Technology research cluster, involved in research and publication, and collaborating with local and international researchers. Her research spans several key areas, including Artificial Intelligence, Assistive Technology, eLearning, and gaming, focusing on theory, design, implementation, and sustainability.

ISBN: 978-93-92104-84-8

Session Speaker

Dr. Saptorshi Das

Professor of English,
Alliance University,
Bangalore,Karnataka, India

Dr Saptorshi Das is a PhD in English from the National Institute of Technology, India, with over a decade of teaching and training experience. With more than 40 journal publication, 4 patents approved by the Government of India, and 6 authored books, Dr. Das has established herself as a distinguished academic. She has served as a trainer with the Government of West Bengal, Government of India, British Council, NSDC, Bournville College, UK, and Cambridge University, UK. A post-doctoral researcher on Shakespearean Studies, presently, Prof Das is working on her DLitt research, bringing the works of the prolific writer, director, artist and essayist, Satyajit Ray, into limelight, specially focusing on the strong women characters he portrayed in his works.

ISBN: 978-93-92104-84-8

Panel Discussion Speakers

Discussion on "Innovation Without Borders: Uniting Science for Global Sustainability"

Dr. Siva Mahendran

Professor,
Department of English,
Curtin Singapore,
Singapore

Dr. Sivanesan Sivakaruniam

Managing Director,
Raffles Education Institute (Singapore) Private Limited &
Straits Tribe (Malaysia) Sdn Bhd,
Singapore

Ms. Nor Nazeranah Haji Omar Din

Program Coordinator & Senior Lecturer, School of Management & Marketing, Faculty of Business, Hospitality & Humanities,
Nilai University, Malaysia

ISBN: 978-93-92104-84-8

About Committee Members

Organizing Secretary

Dr. Siva Mahendran
Professor, Department of English, Curtin Singapore, Singapore

Scientific Committee

Dr.Hasyiya Karimah Adli
Founding Dean, Faculty of Data Science and Computing, Universiti Malaysia Kelantan, Malaysia

Dr.Ts. Vickneswari
Deputy Dean, Faculty of Engineering, Mahsa University, Malaysia

Dr. Ildefe Teves Villanueva
Dean, College of Business Administration, Negros Oriental State University, Philippines

Stefano Cirillo
Assistant Professor, Department of Computer Science, University of Salerno, Italy

Dr. Geraldine Cachola Minas
Assistant Professor & Head, Collegof Human Kenitics Department of Professional Program, Polytechnic University of the Philippines, Philippines

Dr. Mohd Zaki Awang Chek
Associate Professor, Department of Mathematics, Universiti Teknologi MARA, Malaysia

Dr. Sivanesan Sivakaruniam CIA, CISA, CRISC
Managing Director, Raffles Education Institute, (Singapore) Private Limited, Straits Tribe (Malaysia) Sdn Bhd

Review Committee

Dr. Pulasthi Gunawardhana
Senior Lecturer, Information and Communication Technology, University of Sri Jayewardenepura, Sri Lanka

Ms. Nor Nazeranah Omar Din
Senior Lecturer and Program Coordinator, Department of Business and Management, Nilai University, Malaysia

Dr.Isagani Mirador Tano
Associate Professor, College of Computer Studies, Quezon City Polytechnic University, Philippines

Darwin Galorio
Campus Head, Impasugong Campus, Bukidnon State University, Philippines

Mrs.S.Sri Lavanya
Assistant Professor, Department of Computer Science, Malla Reddy Engineering College for Women, India

Ibrahim Othman Hamad
Associate Professor, Department of Mathematics, Salahaddin University-Erbil, Iraq

Armie C. Ibay
Associate Professor, Department of Information Technology, Western Philippines University, Philippines

International Advisory Committee

Dr.Sasikala S
Assistant Professor, Department of Eletronics and Communicatioin Engineering, Dhanalakshmi Srinivasan Engineering College, India

Irum Zeb
PhD Schalor, School of Education, Huazhong University of Science and Technology, China

Dr. Joefry Quanico Barcebal
Director, Academy Affairs,Program Head , College of Teacher Education, University of Antique, Philippines

Analyn Diola
Assistant Professor, Bachelor of Secondary Education, Pangasinan State University, Philippines

ISBN: 978-93-92104-84-8

Dr. Ali Benhmidene
Academician, Chemical engineering processes, The National School of Engineering of Gabes, Tunisia

Ms. Ronina Tayuan
Assistant Professor, Institute of Information and Computer Sciences Internet of Things (LOT)specialization, University of Santo Thomas, Philippines

Bouzidi Souraya
Lecturer, Faculty of Arts and Languages, University Abbas Laghrour Khenchela, Algeria

Anthony John A. Jimenez
Faculty, College of Criminal Justice Education, University of Eastern Pangasinan, Philippines

Peter Paul Q. Calderon
Assistant Professor, College of Education, Don Mariano Marcos Memorial State University, Philippines

Mr. Durga Sanagana
Assistant Professor, Lead Security Architect, Provident Credit Union, USA

Kristine Clarisse S. Canilla
Instructor, Department of Civil Engineering, Western Philippines University, Philippines

Mr. I Putu Tedy Indrayana
Lecturer, Department of Physics, Universitas Udayana, Indonesia

Conference Co-Chair

Dr. Fabiana P. Peñeda
Academic Chair, Master's Programs, Office of the Graduate School, Leyte Normal University, Philippines

National Advisory Committee

Dr. Amila Nayana Kanthi K.Gamage
Associate Professor,Faculty of Management, LIGS University, Avanta Global Pte Ltd,Associate Trainer,Avanta Global Pte Ltd, Singapore

ISBN: 978-93-92104-84-8

Abstract's Index

ISBN: 978-93-92104-84-8

ISBN: 978-93-92104-84-8

Pierre Bourdieu's Habitus Analysis of the "Good Practice" Learning Model at SD Muhammadiyah Sarilamak

Reski Anggraini
Sunan Kalijaga State Islamic University of Yogyakarta, Indonesia
Dendy Wahyu Anugrah
Sunan Kalijaga State Islamic University of Yogyakarta, Indonesia

Abstract

This article presents a philosophical analysis of Pierre Bourdieu's concept of habitus as it pertains to the learning model employed at SD Muhammadiyah Sarilamak in Lima Puluh Kota, West Sumatra Province. In Bourdieu's conceptual framework, the notion of cultural production is understood as a practice undertaken by individuals in their everyday lives. In his analysis of practice, Bourdieu employs a method called genetic structuralism to elucidate the various components that shape practices, including agents, arenas, capital, and tastes. This research employs a descriptive-analytical methodology, utilising the techniques of field research. This research employs a descriptive-analytical methodology, utilizing observations and research findings as the primary data source to investigate the phenomenon at SD Muhammadiyah Sarilamak. Secondary data were obtained from books, scientific articles, and other literature related to the object of research. The objective of this study is to describe and analyze the "good practice" learning model at SD Muhammadiyah Sarilamak through the lens of Pierre Bourdieu's habitus theory. The findings indicate that habitus is the outcome of a prolonged cultivation process that commences during childhood and eventually becomes a form of "second taste" or second nature. Consequently, the implementation of the "good practice" learning model among students at SD Muhammadiyah Sarilamak represents the culmination of a sustained habitus process.

ISBN: 978-93-92104-84-8

Comparing the Effectiveness of Traditional Storybooks and Digital Storytelling Videos in Enhancing Literary Analysis: A Quasi-Experimental Study

Angel Euzie Lamboloto
Polytechnic University of the Philippines, Bulacan Campus, Santa Maria, Philippines

Julianna Joy De Jesus
Polytechnic University of the Philippines, Bulacan Campus, Santa Maria, Philippines

Chonalyn Abtina
Polytechnic University of the Philippines, Bulacan Campus, Santa Maria, Philippines

Yannica Mendoza
Polytechnic University of the Philippines, Bulacan Campus, Santa Maria, Philippines

Romel Sarno
Polytechnic University of the Philippines, Bulacan Campus, Santa Maria, Philippines

Abstract

This study investigates the effectiveness of traditional storybooks and digital storytelling videos in enhancing students' literary analysis skills. The research aims to determine which instructional material better supports comprehension, engagement, and analytical thinking. Using a quasi-experimental design, the study involved three of the biggest schools. A pre-test and post-test were administered to measure the impact of each instructional approach.

The findings revealed that digital storytelling videos significantly improved students' literary analysis skills, with a mean score increase of 1.25 ($p = 0.00005$), compared to a 0.43–point increase ($p = 0.04511$) for traditional storybooks. This suggests that the multimedia elements of digital storytelling—such as visual and auditory stimuli—enhanced comprehension and engagement more effectively than printed text. However, traditional storybooks still demonstrated benefits, particularly in fostering deep reading and critical thinking.

These results highlight the importance of integrating technology into literature instruction while maintaining the value of printed materials. A blended approach may be optimal for developing students' literary skills. The study provides educators with evidence-based insights into selecting instructional materials that best support literary comprehension and analysis.

ISBN: 978-93-92104-84-8

An Integrated Model of Shared Leadership on Entrepreneurial Team performance: Evidence from Indonesia

Andika*
Universitas Brawijaya, Malang, Indonesia
Radityo Putro Handrito
Universitas Brawijaya, Malang, Indonesia
Ana Sofia Aryati
Universitas Brawijaya, Malang, Indonesia

Abstract

Building an entrepreneurial enterprise with a team is a dynamic process and requires effective teamwork. Thus, The idea of shared leadership as a team leadership approach is crucial. Based on social exchange theory, Through knowledge sharing as a moderator and team trust and creativity as a mediator, we examine how shared leadership might enhance team performance. To test our hypotheses, data were collected from 71 entrepreneurial teams (306 members and 73 supervisors) through combined online and offline surveys. Aggregated at the team level, Smart PLS 3.0 was used to analyze the data and evaluate the suggested model. Findings reveal that team performance is greatly improved by shared leadership, with trust and creativity partially mediating this effect. Contrary to expectations, knowledge sharing did not moderate the relationship This study advances the literature by introducing team creativity as a previously underexplored mediating mechanism in the link between team performance and shared leadership. Moreover, the use of dyadic data from both leaders and team members strengthens the methodological rigor by mitigating common method bias and enhancing the robustness of the findings. The findings highlight the critical role of building trust and encouraging creativity in boosting team effectiveness, providing meaningful insights for improving entrepreneurship programs in Indonesia and promoting long-term success.

ISBN: 978-93-92104-84-8

Impact Assessment of AIMS Literacy Programs on Family Related Outcomes at Brgy. 13 Pasay City

Perfecto Tagura Jr.
Asian Institute of Maritime Studies, Pasay, Philippines
Enrico Cardones
Asian Institute of Maritime Studies, Pasay, Philippines
Apolonia Alcedo
Asian Institute of Maritime Studies, Pasay, Philippines

Abstract

This study examined the impact of the AIMS literacy programs on student academic achievement and adult quality of life in Barangay 13, Pasay City. AIMS focuses on providing literacy education for elementary student. As for adults, entrepreneurial training was offered to enhance economic opportunities. Utilizing a quasi-experimental design, the research evaluated student performance across two quarters. The research also assessed the participation rate in entrepreneurial programs as a predictor of quality of life among adult beneficiaries. Data collection involved 50 students and 50 parents, selected through convenience and purposive sampling. Student academic performance was measured through grades in literacy-related subjects from the first and second quarters. Results indicate a significant improvement in student academic performance, with average grades increasing from 79.11 in the first quarter to 86.07 in the second quarter. The said increase in achievement demonstrated the effectiveness of AIMS literacy programs. However, the study found that participation in entrepreneurial programs did not significantly predict quality of life, likely due to the early stage of implementation and broader socio-economic challenges.

ISBN: 978-93-92104-84-8

Correlation of Physical Fitness Factors, Body Mass Index, and Time Spent in Physical Activity of AIMS Maritime Students

Dhuff Mattheus Ortiz
Asian Institute of Maritime Studies, Pasay, Philippines

Liezel Maravilla
Asian Institute of Maritime Studies, Pasay, Philippines

Marianne Garibay
Asian Institute of Maritime Studies, Pasay, Philippines

Abstract

This research aims to assess the current physical fitness status of maritime students and develop strategies to prepare them before their onboarding on international and local vessels. Physical conditioning is identified as the dependent variable, reflecting the general physical functioning and fitness of the respondents. The research hypothesizes that physical activity and BMI also play a significant role in predicting physical conditioning. A total of 212 respondents from the marine transportation and marine engineering programs were included in the study, predominantly male students aged 19–21, classified under the "lower middle-income" socioeconomic category. The results indicate that the respondents perceive themselves as having good muscular condition, flexibility, and body composition. The study reveals positive associations between muscular flexibility and condition, muscular flexibility and physical conditioning, and body composition and physical conditioning. Multiple regression analyses identified muscle flexibility, muscular condition, body composition, BMI, and time spent on physical activity as significant predictors of physical conditioning. Notably, small decreases in body composition and time spent on physical activity were associated with increased physical conditioning, emphasizing the importance of improving these variables to enhance physical health. In conclusion, this research provides insights into the physical fitness status of maritime students and identifies factors influencing their physical conditioning. The study highlights the contributions of muscular flexibility, muscular condition, body composition, physical activity, and BMI in maintaining good physical health among maritime students.

ISBN: 978-93-92104-84-8

The KWB Program: Enhancing Reading Interest and Comprehension to Support Sustainable Development in Early Childhood

Fatia Rosyida
State University of Yogyakarta, Depok, Indonesia

Abstract

Reading has essential to support sustainable development through increasing the quality of education. This study explores the effectiveness of the modified KWB (Kurikulum Wajib Baca) Program in enhancing reading interest and reading comprehension among early childhood learners. The program integrates 15–minute daily reading sessions using boardbooks, tailored to the developmental needs of children aged 4–5 years. Conducted as classroom action research over three cycles, the study involved 25 participants and utilized systematic observations and assessments to evaluate two variables: reading interest and comprehension. The findings reveal consistent improvements across all measured indicators. Reading interest increased significantly, with Interest in Books rising from 58% in pretest to 83% in Cycle 3, and Response to Reading Activities improving from 39% to 81%. Reading comprehension also showed marked progress, with the ability to answer questions about the story increasing from 39% in pretest to 81% in Cycle 3, and to Retell Stories increasing from 37% in pretest to 77% in Cycle 3. The program effectively reduced the proportion of students in lower achievement categories while increasing those in higher categories. This study highlights the value of structured reading interventions in fostering reading interest and reading comprehension among young learners. By addressing socio-economic barriers and providing engaging reading materials, the program serves as a practical model for enhancing reading interest and reading comprehension in early childhood education.

ISBN: 978-93-92104-84-8

Voices From the Classroom: Hei Faculty Experiences with Flexible Learning

Dr. Annabelle A. Gordonas
Polytechnic University of the Philippines, Philippines

Abstract

This study explored the narratives of faculty from Higher Education Institutions (HEIs) on Flexible Learning (FL) in the Philippines. Employing a descriptive qualitative design grounded in narrative inquiry, the research examined the perspectives on the assessment of the participants on the implementation of Flexible Learning in their institutions, challenges encountered in conducting Flexible Learning, and strategies applied in addressing these challenges. Data were gathered through a focus group discussions (FGD). Upon assessing the participants' accounts, the researcher analyzed the data by identifying the emergent codes and themes, following Braun and Clarke's framework.

Significant findings on the experiences of the participants on the implementation of Flexible Learning among HEIs in the Philippines revealed the following results: (a) complexity of Flexible learning, (b) preparation of modalities, and (c) preparation of teaching and learning designs. (2) As to the challenges encountered with FL, the following themes were derived from the interviews: (a) role of technology, (b) resistance to FL, and (c) accessibility, and (3) Finally, after categorizing the initial labels/codes, the themes on the strategies addressed by the participants as to the challenges encountered in the FL claimed the following: (a) upholding academic continuity; (b) promoting equitable access, and (c) sophisticating teaching standards and skills.

Index Terms

Polytechnic University of the Philippines, Experiences, Challenges, Strategies, Flexible Learning, Philippines

ISBN: 978-93-92104-84-8

Integrating AI Tools in Education: Synergizing Science and Innovation for a Sustainable World

Dr. Ajda Fošner
University of Primorska, Koper, Slovenia

Abstract

The integration of artificial intelligence (AI) tools in educational settings has garnered significant attention due to its potential to transform learning experiences and contribute to a sustainable world. This study aims to analyse the usage, attitudes, and perceptions of AI tools among university students in Slovenia, providing a comprehensive analysis that informs both academic practices and policy-making.

Using a structured questionnaire, we measured the frequency of AI tool usage, the purposes for which these tools are employed, and students' attitudes and perceptions towards AI's potential benefits and drawbacks in education. Findings reveal that students generally recognize the efficiency of AI but express concerns about its impact on learning quality and academic integrity. Results indicated that a majority of students are engaging with AI tools, with varied frequencies of use largely dependent on their field of study and academic level. The findings suggest that while AI tools are becoming an integral part of the educational landscape, there is a critical need to address the educational, ethical, and psychological impacts of these technologies.

This study highlights the necessity for further research into the educational implications of AI, suggesting a balanced approach to integrating these technologies into higher education curricula. By synergizing science and innovation, we can create a sustainable educational environment that leverages AI's potential while addressing its challenges.

ISBN: 978-93-92104-84-8

Artificial Intelligence-Based DataOps Data Quality Identification Using Random Decision Neural Network Technique

Ravi Kumar Ravi
State of Florida Employer , Orlando, Florida, USA

Abstract

The effective implementation of intricate data-driven artificial intelligence (AI) software systems now heavily relies on data quality assessment. In reality, real-world applications produce vast amounts of data quickly. Prior to being permanently stored or utilised in a learning activity, these data streams need to be analysed and preprocessed. As a result, the methodical administration and creation of high-quality datasets have received a lot of attention. However, handling large and fast data streams is typically done by hand (i.e. offline), which makes it an unfeasible approach in production settings. We suggested the Random Decision Neural Network (RDNN) for Predictive capabilities in order to solve the problems. This will help DataOps operations be further optimised by anticipating possible errors, guaranteeing proactive problem solving, and enhancing system reliability. By automating and streamlining data pipelines, DataOps improves QC even further by facilitating continuous monitoring and prompt error detection, which raises overall operational efficiency. In order to reconstruct data by learning representations even in the presence of missing information, we first begin with DE noising Auto encoders (DAE). The second phase is feature selection using principal component analysis (PCA), which lowers dimensionality to facilitate data integration. In DataOps workflows, final categorisation using a Random Decision Neural Network (RDNN) results in a quality score for production data, An AI prediction-based method that the data quality score. An industrial real-world use case for the DQCOps framework. The findings demonstrate that DQCOps maintains strong prediction performance while achieving notable computational speedup rates when compared to the traditional method of data quality scoring.

Index Terms

Data Quality, DataOps, Counting, Prediction, Artificial Intelligence, Auto Encoders, Principle Component Analysis

ISBN: 978-93-92104-84-8

Community-Centered Ecotourism as a Sustainable Response to Environmental Degradation in Laguna de Bay

Banayos R*
School of Environmental Science and Management, University of the Philippines Los Baños, Los Banos, Philippines
Sales R
School of Environmental Science and Management, University of the Philippines Los Baños, Los Banos, Philippines
Cabrera J
School of Environmental Science and Management, University of the Philippines Los Baños, Los Banos, Philippines
Ojiniar E
School of Environmental Science and Management, University of the Philippines Los Baños, Los Banos, Philippines
Ancog R
School of Environmental Science and Management, University of the Philippines Los Baños, Los Banos, Philippines

Abstract

Environmental degradation and climate change continue to intensify due to rapid development and unsustainable practices, placing critical ecosystems like Laguna de Bay under increasing pressure. As one of the Philippines' largest inland water bodies, Laguna de Bay plays a vital role in supporting the livelihoods, food security, and well-being of surrounding communities. This study presents initial findings from a community survey conducted under the project "Policy Advocacy for the Adoption of Ecotourism as a Local Sustainable Development Solution for Laguna de Bay's Resource Use and Management," implemented by researchers from the University of the Philippines Los Baños.

The study aims to explore how ecotourism can serve as a science- and technology-based solution to address environmental challenges while supporting local development goals. Using the Theory of Planned Behavior (TPB) as a framework, the research examines community attitudes, perceived social expectations, and behavioral control related to ecotourism participation. Results show that residents are willing to support ecotourism initiatives that promote waste management, biodiversity protection, and inclusive livelihood opportunities. The findings also highlight the need for localized communication strategies and stronger community ownership to ensure long-term sustainability. Overall, the study offers evidence that community-centered ecotourism can be an effective and adaptive strategy for integrating environmental conservation with inclusive development, particularly in areas facing the complex impacts of climate change.

Index Terms

Alternative livelihood, Environmental Science, Resource Conservation and Management, Theory of Planned Behavior, Community Engagement

ISBN: 978-93-92104-84-8

Performance Analysis of High-Strength, Self-Consolidating Concrete with Supplementary Cementitious Materials for Enhanced Durability in Marine

Md Taiyab Ansari
Department of Civil Engineering, Parul Institute of Engineering & Technology, Gujarat, India

Dr. Hardik Solanki
Assistant Professor, Department of Civil Engineering, Parul Institute of Engineering & Technology, Gujarat, India

Abstract

The High-Strength Self-Compacting Concrete or HS-SCC has become an advanced concrete that shows the characteristics of the SCC in terms of self-compacting capability and gets the high COMPRESSIVE STRENGTH which is to be used Marine structures like bridges, offshore platforms and retaining structures are very essential for coastal/ offshore engineering. The study compares different strength of concrete also useful blend enhances the constructability, decrements the amount of labor, and enhances mechanical properties of the concrete (Okamura & Ouchi, 2003).

In this research is to understand how to get high strength with no attack of environmental, including chloride-induced corrosion, sulfate attack, and other forms of deterioration. The study seeks to provide evidence-based recommendations for optimizing HS-SCC mix designs for use in aggressive marine environments. The mix design adopted the ACI 211.1 and then adjusted the design based on some HS-SCC requirements such as slump flow of 650–800 mm and segregation resistance.

ISBN: 978-93-92104-84-8

Enhanced Anomaly Detection Based Machine Learning & AI Explainable Models

Abdallah Altrad
Dept. of Cybersecurity, Jerash University, Jerash, Jordan

Saed Mustafa
School of Digital Technologies, American University of Phnom Penh, Phnom Penh, Cambodia

Piseth Sok
Dept. of Computer Science, Jerash Univeristy, Jarash, Amaman

Mohammad Alzubi
College of Business, The American University of Kurdistan, Duhok- Iraq

Majd Mohammad Alhawamdeh
Dept. of Business, Middle East University, Amman, Jordan

Eyad Alzubi
Dept. of Networking, Jerash Univeristy, Jarash, Amaman

Abstract

Traditional network anomaly detection often relies on statistical analysis of traffic patterns, comparing current behavior against fixed baselines. This method has several drawbacks. It's inflexible and struggles to adapt to dynamic network environments. It also generates a high number of false positives, often misinterpreting normal fluctuations as anomalies. Furthermore, it's limited in its ability to detect new or sophisticated attacks. This research proposes a more dynamic approach using machine learning built and trained using IoT traffic dataset. By learning the complex patterns in network traffic, this approach adapts automatically, making it much better suited to the challenges of dynamic network environments. It also reduces false positives by more accurately pinpointing real anomalies. The resulting model, after training, successfully classified sophisticated attack data with an impressive 98.7% accuracy rate. Finally, this research developed a web application to simplify the real-time detection, classification, and (if necessary) blocking of traffic.

Index Terms

Cybersecurity, Intrusion Detection System (IDS), Machine Learning (ML), Artificial Intelligence (AI)

ISBN: 978-93-92104-84-8

General Education Curriculum Large Classes: Students' Experiences, Preparation, and Engagement

Gerardo B. Lawenko Jr.
Bicol University College of Social Sciences of Philosophy, Albay, Philippines

Abstract

Academic institutions must engage in innovation to maintain relevance. This study explored the experiences of Bicol University (BU) students in large, blended learning General Education Courses (GEC), with an emphasis on face-to-face component. A qualitative approach was utilized, employing survey data collected from GEC students. The investigation encompasses all Bicol University Colleges located in the Daraga, East, and Main Campuses. The study involved 585 students, determined using Cochran's Sampling Method with a 20% attrition rate. The findings revealed that note-taking and active listening were prevalent practices in face-to-face sessions, reflecting active engagement. The emphasis on notetaking and listening highlights the instructor's role in engaging lectures. The study advocates for institutional investment in faculty development that emphasizes effective communication, active learning, and classroom management. Implementation of strategies to minimize disruptions, including the establishment of clear expectations and the utilization of technology, is essential. These findings hold significant implications for policymakers, educators, curriculum planners, decision-makers and other stakeholders in state universities and colleges including Bicol University and comparable institutions.

ISBN: 978-93-92104-84-8

Leading with a Gender Lens: How Leaders Influence Student Outcomes

Chen Liyao
Guangdong Technology College, China &
Faculty Education,Infrastructure University Kuala Lumpur (IUKL), Malaysia

Shu Cheng*
Guangdong Technology College, China

Dr. Suraya Binti Amirrudin
Infrastructure University Kuala Lumpur(IUKL), Malaysia

Abstract

Leadership is a multifaceted construct that requires a nuanced understanding of various influencing factors, one of which is gender. This paper explores how leaders can adopt a gender lens to enhance their leadership effectiveness and drive organizational success. By examining existing literature and conducting empirical research, it outlines the impact of gender dynamics in leadership roles and how they can manifest in different organizational contexts. The research highlights key areas where gender perspectives can offer fresh insights into leadership practices, such as decision-making processes, communication styles, and conflict resolution. Through case studies and interviews with leaders across industries, the study delves into specific examples where gender-aware leadership has contributed to improved team performance and innovation. It also addresses potential challenges and resistances leaders might face when integrating a gender lens into their leadership approach, providing practical strategies to overcome them. The findings suggest that leaders who are attuned to gender dynamics tend to foster more inclusive and equitable work environments, which not only benefits individual team members but also enhances overall organizational resilience and adaptability.

Index Terms

Leadership, Gender Lens, Organizational Success, Gender Dynamics

ISBN: 978-93-92104-84-8

The Role of Patents in Innovation and Economic Growth: A Study of Top Economies

Sanjaya Pudasaini
PhD Student, Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand

Sarinpas Kornwattanakit
Associate Professor, Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand

Abstract

Innovation and economic development are deeply interlinked, with patents serving as key instruments to protect intellectual property and incentivize technological progress. While prior studies highlight the role of innovation ecosystems, limited empirical work has examined how economic prosperity and innovation capacity jointly influence patent activity in leading economies. This study addresses that gap by analyzing panel data from 2010 to 2023 across the 20 most innovative countries, as ranked by the Global Innovation Index (GII).

Patent grants are used as the dependent variable, while GDP per capita and GII scores represent the core explanatory variables. After normalizing the dataset and addressing minimal missing data, Random Effects panel regression is applied, guided by diagnostic tests including the Variance Inflation Factor and the Hausman test. Results reveal that both GDP per capita and GII are positively and significantly associated with patent output, suggesting that stronger economic performance and well-developed innovation systems are associated with higher levels of intellectual property generation.

These findings align with Endogenous Growth Theory, Schumpeter's Theory of Innovation, and Innovation Systems Theory, reinforcing the importance of human capital, institutional structures, and technological capacity in driving sustained innovation. The study provides new longitudinal evidence from high-performing economies, highlighting the need for integrated policy strategies that strengthen innovation frameworks, ensure adequate IP protection, and align R&D investment with national economic objectives.

Index Terms

Innovation, Patent Activity, Economic Development, Intellectual Property, Global Innovation Index

ISBN: 978-93-92104-84-8

Structural Vein Feature Learning for Medicinal Plants using Dual-Path CNN

Arnav Sanjay Karnik
Department of Computer Science and Engineering, Manipal Institute of Technology, Udupi, India

Yashas Sagili
Department of Computer Science and Engineering, Manipal Institute of Technology, Udupi, India

Nikhil Nair
Department of Computer Science and Engineering, Manipal Institute of Technology, Udupi, India

Shanthi P B
Department of Computer Science and Engineering, Manipal Institute of Technology, Udupi, India

Abstract

Accurate identification of medicinal plant species is a critical task with applications spanning pharmacological research, biodiversity monitoring, and traditional healthcare. While leaf images are commonly used for automated classification, conventional approaches often emphasize surface-level features and neglect the informative internal venation structure. In this work, we propose a novel venation-centric deep learning framework designed to enhance species recognition by leveraging vein morphology as a primary cue.

Our method integrates advanced image enhancement techniques with a custom Dual-Path Convolutional Neural Network (CNN). The preprocessing stage employs contrast-limited adaptive histogram equalization, Frangi filtering to highlight vascular structures, and edge detection, resulting in a composite three channel input comprising RGB images, vein-enhanced maps, and edge outlines. The Dual-Path CNN separately processes texture and venation inputs, combining them through an attention-based fusion mechanism to learn rich, multi-scale features.

We evaluate our system using the Indian Medicinal Plants Dataset and demonstrate that it consistently outperforms standard CNN architectures across multiple evaluation metrics, including accuracy, precision, recall, and F1–score. The results confirm that venation provides robust discriminative information, particularly in challenging cases of inter-species similarity.

With its compact and efficient design, our framework is well suited for real-time deployment on mobile and edge devices, offering a practical and scalable solution for field-based medicinal plant identification.

Index Terms

Deep Learning, Convolutional Neural Networks, Medicinal Plant Classification, Venation Analysis, Multi-Scale Feature Extraction, Computer Vision, Image-Based Plant Identification, Transfer Learning, Attention Mechanisms, Image Enhancement, Frangi Filter, Edge Detection, Interpretable Models, Biological Image Analysis, Mobile And Edge Deployment, Sustainable Agriculture, Medical Botany, Real-Time Plant Recognition, Leaf Venation Patterns, Ai For Biodiversity

ISBN: 978-93-92104-84-8

The Semiconductor Industry and Its Economic, Political, and Social Impact in Mexico

Dr. Cuauhtémoc León Puertos
National Polytechnic Institute, Center for Nanosciences and Micro and Nanotechnologies (CNMN), Mexico City, Mexico

Dra. Isela Janeth López Valle
National Polytechnic Institute, Higher School of Mechanical and Electrical Engineering (ESIME), Mexico City, Mexico

Dr. David Arturo Reyes Chacón
Chapingo Autonomous University Texcoco, National Research Laboratory and Agri-Food and Forestry Service (LANISAF), Mexico City, Mexico

Dra. Cristina Garibay Bagnis
National Polytechnic Institute, Higher School of Commerce and Administration (ESCA), Mexico City, Mexico

Dra. Mayra Rivera Anaya
Autonomous University of The State of Hidalgo (UAEH), Academic Area of Engineering and Architecture, Mexico City, Mexico

Abstract

The semiconductor industry has become a cornerstone of the digital economy and a crucial element in global technological progress. Mexico, thanks to its strategic location, trade agreements such as the USMCA, and a growing industrial base, is well-positioned to enhance its role in this value chain.

This study examines the impact of the semiconductor industry on Mexico's economy, focusing on key aspects such as foreign direct investment, exports, job creation, and technological infrastructure. It also explores the theoretical, political, and economic frameworks supporting digital transformation, emphasizing the importance of human capital, innovation, and collaboration among academia, industry, and government.

Additionally, the analysis highlights nearshoring as a historic opportunity for Mexico, facilitating the relocation of manufacturing plants closer to the North American market. By leveraging this trend, the country can attract significant investment and strengthen its industrial capabilities.

Finally, the study outlines strategies to consolidate Mexico's leadership in the semiconductor sector, including the development of specialized talent, improvements in public policy, intellectual property protection, and the strengthening of international partnerships. The findings suggest that, with a comprehensive strategy, Mexico has the potential to become a key player in the global semiconductor industry, significantly contributing to economic growth and technological positioning.

Index Terms

Semiconductors, Industry, Technologies, Economy, Politics

ISBN: 978-93-92104-84-8

Spatial Autocorrelation-Enhanced Ensemble Learning for Urban Air Quality Prediction: A Cross-City Benchmarking Study Including Jakarta

Muh Akbar Idris
IPB University, Bogor, Indonesia

Abstract

Cities worldwide are battling escalating air pollution driven by rapid urbanization and industrial growth, which jeopardizes public health and ecosystems. To tackle this crisis, our study introduces a hybrid method that combines spatial autocorrelation statistics-Moran's I for global clustering and Geary's C for local variation-with ensemble machine learning to enhance air quality forecasting. By incorporating spatial data into feature engineering, our approach overcomes the limitations of individual monitoring station analyses, capturing how pollutants disperse across interconnected urban areas.

Our dual-ensemble strategy leverages Random Forest's prowess in managing high-dimensional data and Gradient Boosting's iterative error correction, adapting effectively to nonlinear relationships and spatial non-stationarity. Validated with high-resolution sensor data from Los Angeles, Beijing, London, and Mumbai, the method achieves a 12–18% reduction in RMSE and MAE, and a 20% improvement in R^2 compared to spatially naïve models. Preliminary tests in Jakarta show similar spatial dependency patterns, despite challenges like sparse sensor coverage and transboundary haze. This research provides policymakers with a flexible framework for targeted emission controls, strengthened monitoring, and resilient urban planning for sustainable megacities.

ISBN: 978-93-92104-84-8

HR Capabilities in the AI Era: Multi-stakeholder Insights on Capability Requirements for HR Professionals

Mathukumalli V R K Kanaka Durga Devi
Department of Management Studies, Indian Institute of Technology, Madras (IIT Madras), Chennai, India

Rupashree Baral
Department of Management Studies, Indian Institute of Technology, Madras (IIT Madras), Chennai, India

Abstract

Introduction: AI is changing the way businesses operate, especially in human resources. Although AI deployment benefits HRM, the adoption rate is low compared to other functional areas. The major reasons include a lack of HR competencies, ethical guidelines, and practical guidance to lead AI-enabled HRM. Earlier studies indicated that while some managerial capabilities are essential, they lack empirical data and interdisciplinary perspectives from multiple stakeholders to understand the AI-HRM ecosystem. Hence, our study intends to investigate the critical capabilities required for HR professionals to use AI in HRM.

Methodology: Using the triangulation method, we gathered different viewpoints from 27 key stakeholders (early adopters of AI-HRM), including HR professionals, AI experts, AI-HR consultants, and employees, through focus groups and semi-structured interviews and integrated the results with academic literature and business reports for a comprehensive picture.

Findings and Contributions: Using the Gioia methodology, we discovered that the ability to utilize AI responsibly and AI evaluation skills are crucial in the AI era. Additionally, HR professionals do not need to know the coding. However, they should understand how AI arrives at decisions and how algorithms function. Through the dynamic capability viewpoint(DCV), this study helps HR professionals to upskill and prepare for AI-driven workplaces.

Index Terms

Semiconductors, Industry, Technologies, Economy, Politics

ISBN: 978-93-92104-84-8