



KIU



4TH MULTIDISCIPLINARY RESEARCH CONFERENCE 2025 (MRC 2025)

Proceedings Book II (Multidisciplinary)

Inspiring Excellence in Innovation through
Multidisciplinary Research
25th October 2025

Organized by: KIU, Sri Lanka



Proceedings

The 4th Multidisciplinary Research Conference 2025 (MRC 2025)

“Inspiring Excellence in Innovation through Multidisciplinary Research”

25th of October 2025 | Colombo, Sri Lanka

Committee of the 4th Multidisciplinary Research Conference 2025
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Message from the President

Dr. Jagath Seneviratne
President, KIU University

Research is the foundation upon which knowledge evolves and societies progress. A university's strength is measured not only by the degrees it awards, but by the questions it dares to ask and the discoveries it brings to the world. At KIU, we consider research an essential pillar of academic growth, one that cultivates critical thinking, nurtures innovation, and empowers individuals to contribute meaningfully to their fields.

In an era defined by rapid technological change and complex global challenges, the value of research becomes even more profound. It provides the tools to understand emerging realities, the evidence to guide decisions, and the insight to shape sustainable futures. Whether in the sciences, humanities, or applied disciplines, rigorous inquiry remains a universal catalyst for advancement.

As an institution committed to academic excellence, KIU continues to encourage work that expands perspectives, challenges assumptions, and strengthens scholarly dialogue. The pursuit of knowledge is a responsibility shared by all who engage in academia, and it is through this collective effort that we elevate the intellectual landscape of our nation.

Research does not merely produce answers, it opens pathways. And it is these pathways that lead us toward deeper understanding, greater innovation, and a more informed society.



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**Message from the Vice Chancellor
and the Chief Advisor
of the
4th Multidisciplinary Research
Conference 2025**

Dr. Sajeewanie Liyana-arachchi

Vice Chancellor, Conference Advisor
Multidisciplinary Research Conference – 2025
KIU, Sri Lanka



Distinguished Guests, Esteemed Academics, Researchers, and Participants,

It is with great pride and immense pleasure that I warmly welcome you all to the 4th Multidisciplinary Research Conference (MRC) 2025, organized by KIU Sri Lanka. As the Conference Advisor, it is both an honour and a privilege to inaugurate an event that stands as a testament to our unwavering commitment to advancing knowledge, fostering collaboration, and promoting innovation across disciplines.

The theme of the conference, "Inspiring Excellence in Innovation through Multidisciplinary Research," underscores the vital role of cross-disciplinary collaboration in driving groundbreaking discoveries. By fostering synergies across diverse fields, we aim to inspire transformative ideas and impactful research that transcends traditional boundaries. Over the course of this conference, we will witness an impressive array of research presentations addressing critical global challenges across technology, health sciences, social innovation, and sustainability. I encourage all participants to engage actively, share your perspectives, and maximize the networking opportunities available.

I take this opportunity to express my sincere appreciation to the Conference Chair, the Organizing Committee, and all academic and administrative teams whose dedication, professionalism, and meticulous planning have made this conference a reality. Your collective efforts have ensured that MRC 2025 continues to serve as a dynamic platform for knowledge exchange, critical dialogue, and academic inspiration.

To our distinguished speakers, researchers, and participants, I extend my best wishes for a productive and intellectually enriching conference. May your contributions today inspire new directions in research, ignite innovative thinking, and strengthen our collective pursuit of knowledge for the betterment of society. Thank you for being part of this remarkable academic journey. Together, let us continue to shape a future defined by discovery, collaboration, and transformative impact.

I wish you all a productive, insightful, and inspiring conference.



Message from the Orator

Snr. Prof. Ajantha S. Dharmasiri

Orator

Multidisciplinary Research Conference – 2025
KIU, Sri Lanka

I am indeed delighted to share my thoughts, when the KIU is organizing its fourth Multi-Disciplinary Research Conference with the apt theme, “Inspiring excellence in innovation through multi-disciplinary research”. It is a significant step taken by a non-state higher education provider to promote research with intellectual richness and industry relevance.

“Innovation is the ability to see change as an opportunity, not a threat”, so said Steve Jobs. In painfully moving beyond a planetary pandemic, economic resurgence of Sri Lanka has become an increasingly challenging endeavour. Innovation on multiple fronts can play a pivotal role there. The support needed by comprehensive research to take data-driven decisions is felt more than any other time. Such efforts should be made in connection with the rapid technological advances around the globe. Referring to global research with local relevance is the starting point. Conducting local research with global reach is the continuous progression.

As we are aware, management research falls into the broader category of social research. Whilst positive initiatives are being taken, current situation with respect to research in Sri Lanka is far from a satisfactory level. We have an acute gap to bridge with regard to the current and desired levels of engaging in management research, with publishable quality and practical relevance. The significant step of conducting the conferences of this nature needs to be commended in this context.

May I take this opportunity to thank the MRC team for their committed collaboration in vibrantly showcasing the solid research findings. Let me wholeheartedly wish this prestigious event a phenomenal success.



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Message from the Keynote Speaker

Dr. Malmi Kiriwandalage

Keynote speaker

Multidisciplinary Research Conference – 2025

KIU, Sri Lanka



Dear Esteemed Researchers, Distinguished Guests, and Enthusiastic Students,

It is with immense pleasure and honor that I address you today as the keynote speaker for the Multidisciplinary Research Conference 2025, hosted by the prestigious KIU University in Sri Lanka. As a Solar System Ambassador at NASA's Jet Propulsion Laboratory and an aspiring astrobiologist, I am particularly thrilled to be part of an event that champions the very essence of exploration and discovery across diverse fields. This conference serves as a vital platform, bringing together brilliant minds from various disciplines to share their insights, present groundbreaking research, and ignite collaborative endeavors. The interdisciplinary nature of our discussions here is paramount, as the most profound breakthroughs often emerge at the intersections of different fields, much like how astrobiology draws upon biology, chemistry, geology, and astronomy to unravel the mysteries of life beyond Earth.

This conference represents an unparalleled learning opportunity. Whether you are presenting your latest findings, attending a stimulating session, or engaging in informal discussions, every interaction here is a chance to expand your horizons. The knowledge exchange facilitated by such gatherings is invaluable, offering fresh perspectives and inspiring new lines of inquiry. Furthermore, the networking opportunities at this event are just as significant. Building connections with fellow researchers, potential mentors, and future collaborators can open doors to exciting new projects and career paths. I strongly encourage everyone to seize these opportunities, engage actively, and forge relationships that will undoubtedly enrich your academic and professional journeys for years to come.

I would like to extend my deepest gratitude to the dedicated team at KIU University for their exceptional efforts in organizing this Multidisciplinary Research Conference 2025. The meticulous planning and tireless work involved in bringing together such a diverse and accomplished group of individuals are truly commendable. Your commitment to fostering a vibrant research culture and providing a platform for intellectual exchange is evident, and it is a testament to KIU University's leadership in promoting academic excellence in Sri Lanka. I am confident that this conference will be a resounding success, leading to significant advancements and inspiring the next generation of researchers to push the boundaries of knowledge. Thank you for inviting me to be a part of this remarkable event.



Message from the Conference Chairperson

Prof. Anuradhi S. Hapuarachchi

Conference Chairperson

4th Multidisciplinary Research Conference – 2025
KIU, Sri Lanka

It is with immense pride and gratitude that I extend my heartfelt appreciation to all who contributed to the success of the KIU Multidisciplinary Research Conference (MRC) 2025. This conference stands as a testament to the power of collaboration, knowledge-sharing, and innovation across diverse academic disciplines.

MRC 2025 was more than an academic gathering it was a celebration of intellectual curiosity and research excellence. The wide spectrum of research presented by scholars from medicine, management, technology, humanities, and beyond, reflects KIU's commitment to fostering a vibrant and inclusive research culture. The participation of international dignitaries further highlighted the global relevance of our efforts.

As Chairperson, I am truly inspired by the dedication of our researchers, students, keynote speakers, and organizing teams. Each presentation, discussion, and interaction added a new layer of insight and opened doors to future exploration.

This conference souvenir captures the spirit and substance of MRC 2025. May it serve as a record of our achievements and a reminder of the collective responsibility we hold to pursue knowledge that drives sustainable development and meaningful impact in society.

Let us continue to challenge boundaries, break silos, and lead with purpose.



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Message from the Conference Co-Chairperson

Dr. Anuradha Thennakoon

Conference Co-Chairperson

4th Multidisciplinary Research Conference – 2025

KIU, Sri Lanka



I warmly welcome you to the 4th Multidisciplinary Research Conference - KIU 2025, the Annual International Conference of KIU. With a record number of participants expected this year, we are delighted to see that these annual conferences are becoming more and more advanced and gain substantial popularity every year.

The theme for this year's conference is "*Inspiring Excellence in Innovation through Multidisciplinary Research*," which I firmly believe to be timely and relevant. I hope that this conference will allow participants a productive discourse not only in managing academic objectives but also in addressing contemporary challenges across various disciplines.

Essentially, the purpose of this conference is to share and exchange valuable information. Through these discussions, different recommendations and solutions can be developed as experts from various fields gather together to examine problems and explore emerging trends in multidisciplinary research.

This conference would not be possible without the generous support of the entire KIU community, our sponsors and well-wishers. I am truly grateful to all organizing committee members, faculty coordinators, session chairs, and volunteers whose dedicated efforts have made this event possible. Most importantly, I thank you, the participants, for enriching this conference by your presence and contributions.

The broad scope of this event provides a unique meeting ground for researchers spanning multiple disciplines. I hope fruitful collaborations will be established while sharing knowledge through meaningful academic exchange. Finally, I extend my best wishes to all participants on their outstanding research contributions and look forward to a successful and enriching conference experience.



Message from the Conference Co-Chairperson

Mr. Akila R. Jayamaha

Conference Co-Chairperson

4th Multidisciplinary Research Conference – 2025
KIU, Sri Lanka

It is with great pride and enthusiasm that I extend my warmest greetings to all the stakeholders of the Multidisciplinary Research Conference (MRC) 2025, under the theme *“Inspiring Excellence in Innovation through Multidisciplinary Research.”* This conference stands as a vibrant platform that brings together scholars, professionals, and students from diverse fields to exchange ideas, challenge conventions, and chart new directions for the future of research and innovation. In an era where the boundaries between disciplines are rapidly dissolving, the importance of collaborative inquiry cannot be overstated. The challenges that we encounter in terms of health, education, technology, or the environment are inherently interconnected. Addressing them demands not isolated expertise, but the synergy of multidisciplinary perspectives.

As we reflect upon the conference theme, it is fitting to a motto lived by Florence Nightingale: *“It is better to die in the surf, heralding the way to a new world, than stand idly on the shore.”* These words capture the essence of courage, purpose, and transformative vision that have defined the nursing profession since its inception. Today, as healthcare evolves amidst global challenges, the nursing community continues to “stand in the surf,” facing waves of complexity with resilience and compassion. Whether in patient-centered care, evidence-based practice, or health systems research, nurses remain at the forefront of progress bridging science and humanity. Your contributions not only heal individuals but also reshape the very fabric of health and wellbeing in society.

Through your research, innovation, and dedication, you herald the way toward a “new world” one grounded in scientific integrity, ethical practice, and interdisciplinary collaboration. I encourage each of you to use this conference as a springboard to share your discoveries, to question boldly, and to connect meaningfully with peers across disciplines. The insights born here will ripple far beyond the conference halls into hospitals, classrooms, laboratories, and communities across Sri Lanka and beyond. May this gathering ignite in all of us a renewed commitment to excellence. Together, let us continue to innovate, inspire, and lead undaunted by the surf, united in our mission to shape a better, healthier, and more sustainable world.

With my sincere appreciation to the organizing committee, presenters, and participants, I wish MRC 2025 every success. May it be a beacon of inspiration for all who dare to move beyond the shore.



KIU

Message from the Conference Co-Chairperson

Ms. Nadeeka Ranadeva
Conference Co-Chairperson
4th Multidisciplinary Research Conference – 2025
KIU, Sri Lanka



Dear Esteemed Participants,

It is with great pleasure and enthusiasm that I welcome you to the 4th Multidisciplinary Research Conference 2025 organized by KIU. The theme of this year, "*Inspiring Excellence in Innovation through Multidisciplinary Research*," reflects our shared commitment to fostering collaboration and creativity across diverse fields to address the emerging challenges of our world.

In an age where knowledge transcends disciplinary boundaries, this conference provides an ideal platform for scholars, researchers, and professionals to share insights and explore solutions that contribute meaningfully to both national and global development. I am particularly proud of the growing strength of research in the health sciences and the dedication of our academic community in driving evidence-based innovation and sustainable practices.

As we gather to exchange ideas and present research findings, I encourage all participants to engage deeply, question curiously, and collaborate widely. Together, we can nurture a culture of critical inquiry and knowledge creation that shapes a better future.

On behalf of the organizing committee, I extend my sincere appreciation to all presenters, reviewers, and contributors for their commitment. May this conference ignite new partnerships, inspire fresh perspectives, and strengthen the spirit of multidisciplinary scholarship.

Wishing you a successful and enriching conference experience!



Message from the Conference Co-Chairperson

Ms. Thakshila Dushyanthi

Conference Co-Chairperson

4th Multidisciplinary Research Conference – 2025

KIU, Sri Lanka

Dear Esteemed Participants,

It is with great pleasure and enthusiasm that I warmly welcome all participants of the 4th Multidisciplinary Research Conference (MRC) 2025, organized by KIU. This year's theme, "Inspiring Excellence in Innovation through Multidisciplinary Research," reflects our shared dedication to fostering collaboration, creativity, and idea exchange across disciplines to tackle the complex challenges of today's world. In today's dynamic environment, where knowledge evolves rapidly and societal issues are increasingly interconnected, multidisciplinary research has become a foundation of meaningful progress. This conference provides an ideal platform for academics, researchers, and professionals from diverse fields to share their insights, discuss innovative solutions, and foster a culture of research that transcends disciplinary boundaries.

As we gather here to celebrate intellectual diversity, I encourage all participants to engage actively in scholarly discussions, exchange constructive feedback, and build lasting collaborations that extend beyond this event. Such collective efforts not only enhance the quality of academic inquiry but also contribute to national and global development. I extend my heartfelt appreciation to all distinguished speakers, presenters, reviewers, and organizing committee members for their valuable contributions. May this conference inspire innovation, collaboration, and a renewed passion for advancing multidisciplinary research.

Wishing you all a productive and inspiring conference experience!



KIU

Message from the Conference Co-Chairperson

Mr. L. M. Dilantha Deva Adithiya
Conference Co-Chairperson
4th Multidisciplinary Research Conference – 2025
KIU, Sri Lanka



Dear Esteemed Participants,

It is with great pleasure and honour that I warmly welcome you to the 4th Multidisciplinary Research Conference (MRC) 2025 of KIU University. This year's theme, "Inspiring Excellence in Innovation through Multidisciplinary Research," celebrates our shared vision of advancing creativity, critical inquiry, and cross-disciplinary collaboration in the pursuit of academic and societal progress.

This year's session, bringing together the fields of Information Technology, Law, and Behavioural Sciences, embodies the very essence of multidisciplinary integration. It highlights how technology, legal frameworks, and human behaviour intersect to shape modern societies and drive meaningful innovation. By exploring this intersection, we aim to inspire novel approaches, strengthen research linkages, and create pathways for impactful, evidence-based solutions.

The Multidisciplinary Research Conference serves as a dynamic platform for scholars, professionals, and students to exchange knowledge, share research insights, and engage in constructive dialogue that transcends conventional academic boundaries. Through thought-provoking keynote addresses, research presentations, and discussions, this event fosters an environment of intellectual curiosity and collaborative excellence. As we convene today, I encourage each participant to embrace this opportunity to connect, learn, and innovate together. It is through such collaborations that we nurture a culture of academic excellence and contribute to sustainable development in our respective disciplines and beyond.

On behalf of the organising committee, I would like to extend my heartfelt appreciation to all speakers, presenters, reviewers, and participants for their invaluable contributions to making this conference a success. Let us continue to inspire excellence and innovation through the spirit of multidisciplinary research.

Wishing you all a fruitful and inspiring conference experience!



Message from the Editor-in-Chief

Prof. Priyanganie Senanayake

Editor-in-Chief

Multidisciplinary Research Conference – 2025

KIU, Sri Lanka

It is with great pleasure that I present the proceedings of abstracts for the 4th Multidisciplinary Research Conference 2025, KIU Campus, Sri Lanka, centered on the theme “Inspiring Excellence through Innovation and Multidisciplinary Research.” This compilation reflects the outstanding intellectual contributions of researchers, practitioners, and scholars who are driving knowledge and innovation across diverse fields.

Our focus on multidisciplinary research tracks, Nursing, Biomedical Science, Management, Language & Education, Computer science & Engineering, and Law highlights the importance of collaboration across disciplines to address complex challenges in health, science, society and organizational practice. The abstracts included herein showcase cutting edge research, innovative methodologies, and practical insights that have the potential to transform their respective fields.

I commend all authors for their dedication, creativity, and rigorous scholarship. Their work not only advances academic inquiry but also inspires the broader community to pursue excellence through innovation. I am confident that the ideas and findings presented in this collection will spark fruitful discussions, collaborations, and future research initiatives.

On behalf of the editorial board, I extend my gratitude to all contributors, reviewers, and organizers who made this compilation possible. It is our hope that these proceedings will serve as a valuable resource and a source of inspiration for scholars, practitioners, and students alike.



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Thanking Note from the Conference Secretary

Ms. Chamathi Pinnawala

Conference Secretary
Multidisciplinary Research Conference – 2025
KIU, Sri Lanka



It is with immense pleasure and gratitude that I thank all esteemed contributors to the 4th Multidisciplinary Research Conference 2025 for making this event a remarkable success. This milestone event has brought together researchers, academicians, and practitioners from Nursing, Health and Multidisciplinary Sciences, and Management to share knowledge, foster innovation, and advance scholarly discourse.

I extend my deepest appreciation to Senior Professor Ajantha Dharmasiri, Former Director and Chairman of the Board of Management, Postgraduate Institute of Management, University of Sri Jayewardenepura, for his inspiring oration. I am grateful to Dr. Malmi Kiriwandalage, Solar System Ambassador from NASA, USA, for her enlightening keynote address.

My profound gratitude goes to Dr. Jagath Seneviratne, President of KIU, for his visionary leadership, and to Dr. Sajeewanie Liyana-Arachchi, Vice Chancellor of KIU and Chief Advisor of MRC, for her strategic guidance.

Special recognition is due to Professor Anuradhi S. Hapuarachchi, Conference Chairperson, for her exemplary leadership. I extend my sincere appreciation to our Co-Chairpersons—Dr. Anuradha Tennakoon, Mr. Akila R. Jayamaha, Mr. Dilantha Deva Adithiya, Ms. Nadeeka Ranadewa, and Ms. Thakshila Dushyanthi for their collaborative efforts. I sincerely thank Professor Priyanganie Senanayake, Editor-in-Chief, for her meticulous oversight in curating these proceedings.

My heartfelt appreciation extends to our Technical Session Chairpersons—Professor S.S.P. Warnakulasuriya, Professor Dunusinghe G. Dharmarathne, Dr. Dineshani Hettiarachchi, and Dr. Dinithi Deva Adithiya—for facilitating enriching discussions and maintaining academic excellence. I am grateful to KIU management, Deans, Heads of Departments, academic and non-academic staff, expert reviewers, the Co-Secretaries, the organizing committee, and our dedicated students for their invaluable support and tireless commitment.

To all contributing authors and participants, thank you for your intellectual contributions. I look forward to the continued growth of this platform as a catalyst for interdisciplinary research and innovation.

Schedule of the Technical Session – Multidisciplinary

Oral Presentations – Psychology		
SN	Abstract ID	Title and Author/s of the Abstract
OP 01	AB001	Gender Disparities in STEM Education and Career Choices: A Quantitative Study of Engineering Undergraduates in Sri Lanka <i>Sivakumar S., Thanapalasingam U</i>
OP 02	AB039	Organisational Stress and Attitudes Toward Social Justice Among Police Officers in Colombo South, Sri Lanka <i>Weerasinghe HPA, Weerasinghe BDS, Deva Adithiya LMD</i>
OP 03	AB050	The Role of Personality and Online Interactions in Video Game Dependency among Sri Lankan Gamers <i>Ranathunga BL, Deva Adithiya LMD</i>
OP 04	AB270	The Association Between Sports Performance Anxiety and Aggression among Combat Sports Athletes in Sri Lanka <i>Thuthisan R, Deva Adithiya LMD</i>
OP 05	AB215	Parental Influence on Providing Education to Children in Rural Communities: A Case Study of Molkawa Village, Sri Lanka <i>Withana WBA</i>

Schedule of the Technical Session –Multidisciplinary

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SN	Abstract ID	Title and Author/s of the Abstract
PP 01	AB040	<p>The Relationship Between Stress Resilience Among Advanced Level Students in the Gampaha District of Sri Lanka</p> <p><i>Samarakoon-SBRPW, Umar T</i></p>
PP 02	AB041	<p>The Association Between Problematic Usage of Mobile Phones and Academic Performance Among Undergraduates in Selected Non-State Universities in Colombo District, Sri Lanka</p> <p><i>Perera MAVSD, Deva Adithiya LMD</i></p>
PP 03	AB048	<p>The Relationship Between Video Game Dependency and Self-Efficacy among Individuals Aged 18 - 39 Who Utilise Gaming Chat Platforms for Gaming Purposes in Sri Lanka.</p> <p><i>Weerasuriya ST, Samarakoon DNAW, Deva Adithiya LMD</i></p>

Schedule of the Technical Session – Multidisciplinary

Oral Presentations- Law		
SN	Abstract ID	Title and Author/s of the Abstract
PP 01	AB022	<p>Marital Rape: A Veiled Stereotype in Law and Society</p> <p><i>Balage DT</i></p>
PP 02	AB004	<p>Sri Lanka's Trade Liberalisation Experience: Balancing Growth, Equity, and Competitiveness</p> <p><i>Kodithuwakku KNKR</i></p>
PP 03	AB082	<p>Toward a Comprehensive Legal Framework for Addressing Cyber Offences in Sri Lanka: Identifying and Mitigating Legislative Gaps</p> <p><i>Shayamindi BS, Wijesinghe RPMT, Madhushani DHD, Ellepola CSD</i></p>

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Poster Presentations- Law		
SN	Abstract ID	Title and Author/s of the Abstract
PP 01	AB199	An Analysis of the Copyright Laws on the Ownership of a Song and the Related Dilemmas in the Sri Lankan Music Industry <i>Geekiyanaige K</i>
PP 02	AB178	Data Protection and Privacy in Digital Commerce: A Sri Lankan Perspective <i>Dasalya BLD, Geekiyanaige K</i>
PP 03	AB002	The Russia–Ukraine Conflict: Sovereignty, International Law, and Geopolitical Tensions <i>Perera LHAIS, Christina MJ</i>

Schedule of the Technical Session – Multidisciplinary

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SN	Abstract ID	Title and Author/s of the Abstract
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PP 02	AB212	Industry 5.0 and Human-Centric Innovation: The Future of Workforce & Automation in Academia <i>Thanyashri H, Vinodhkumar S, Ghose G, Guddeti A</i>
PP 03	AB198	Optimising Real-Time Decision-Making in Autonomous Systems through the Integration of Artificial Intelligence and Edge Computing <i>Rajasinghe RWMRDN, Wijesinghe DT</i>



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Multidisciplinary Research Conference 2025

Proceedings MRC 2025 - Book II



**Oral Presentations
Psychology**

OP 01 AB001

Gender Disparities in STEM Education and Career Choices: A Quantitative Study of Engineering Undergraduates in Sri Lanka

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Introduction: Notwithstanding persistent initiatives aimed at augmenting female representation within STEM disciplines, pronounced gender discrepancies remain evident. In Sri Lanka, this issue is particularly concerning, as there is a limited amount of empirical research examining the specific factors contributing to these gender disparities. This lack of context-specific evidence hinders the development of effective strategies and policies to address the underrepresentation of women in STEM education and careers. This study analyses the gender disparities that exist in STEM (Science, Technology, Engineering, and Mathematics) education and career trajectories through a quantitative lens, specifically targeting engineering undergraduates in Sri Lanka.

Objective: The research delves into the influence of individual factors, including gender and academic performance, along with contextual elements such as family support, educational encouragement, and perceived gender stereotypes, on students' enrolment in STEM education and their professional aspirations.

Methodology: Data were gathered from 140 engineering undergraduates (60% male and 40% female) in a public university in Sri Lanka through the administration of a structured questionnaire. Binary logistic regression and correlation analyses were performed through SPSS software.

Results: Findings indicate that female students exhibit a 32% reduced likelihood of pursuing STEM careers in comparison to their male counterparts (Odds Ratio = 0.68, $p < 0.05$). Academic performance emerges as a significant predictor for enrolment in STEM programs ($\beta = 0.43$, $p < 0.01$), while familial and academic support is shown to exert a beneficial effect on students' decision-making (average score = 4.1/5, $p < 0.05$). Gender stereotypes persist as a barrier, reflected by a negative correlation ($r = -0.29$, $p < 0.05$) between the perception of stereotypes and interest in STEM careers, particularly among female students.

Conclusion: The current study contributes to the scant existing empirical literature addressing gender disparities in STEM fields within South Asia and offers practical recommendations for educational institutions and policymakers. The limitations of this study include its singular institutional focus and reliance on cross-sectional data.

Keywords: STEM education, gender disparity, academic performance, engineering undergraduates.

OP02 AB039

Organisational Stress and Attitudes Toward Social Justice Among Police Officers in Colombo South, Sri Lanka

Weerasinghe H. P. A.^{1*}, Weerasinghe B.D.S.¹, Deva Adithiya L.M.D.¹

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Introduction: Police officers often operate in high-stress environments that may influence their professional values, including attitudes toward social justice. While international studies indicate a link between occupational stress and diminished ethical attitudes in policing, limited research has examined this relationship within the Sri Lankan context.

Objective: To assess the relationship between organisational stress and attitudes toward social justice among police officers, identify key organisational stressors, and examine the influence of demographic variables on organisational stress and social justice attitudes.

Methodology: A descriptive cross-sectional design was employed with a sample of 192 police officers from the Colombo South Police Division. Data were collected through a paper-based questionnaire comprising the demographic profile, the Organisational Police Stress Questionnaire, and the Social Justice Scale - well-established instruments carefully adapted to the local context through back-translation. One-way Multivariate Analysis of Variance (MANOVA) was conducted to analyse the effects of stress levels on four dimensions of social justice attitudes.

Results: High organisational stress was reported by 75% of participants ($M = 4.16$, $SD = 1.67$). Insufficient resources and inconsistent leadership were identified as key organisational stressors within the sample. MANOVA results revealed no significant multivariate effect of organisational stress on social justice attitudes [$F(8, 374) = 1.192$, $p = .306$; Wilk's $\Lambda = 0.951$, partial $\eta^2 = .025$]. However, age showed a significant influence [Pillai's Trace = .182, $F(16, 748) = 2.230$, $p = .004$, partial $\eta^2 = .046$], with younger officers demonstrating more favorable attitudes.

Conclusion: Despite finding no direct relationship, the high prevalence of stress and age-related differences in justice attitudes reflect trends observed in law enforcement research. The lack of association may stem from officers' professional ethics, sociocultural values, and public expectations of fairness. These findings underscore the importance of addressing organisational stressors to enhance officer well-being and promote more equitable attitudes in policing.

Keywords: organisational stress, social justice, police officers, Sri Lanka

OP03 AB050

The Role of Personality and Online Interactions in Video Game Dependency among Sri Lankan Gamers

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Introduction: Over the last few decades, video games have evolved into one of the most profitable industries globally. Alongside the establishment of the Sri Lankan Esports Association, the gaming community in Sri Lanka has experienced significant expansion. Despite its notable benefits, excessive gameplay can lead to negative consequences, including video game dependency.

Objective: This study aimed to investigate the relationship between video game dependency and personality traits among Sri Lankan gamers. It explored the differences in personality profiles between dependent and non-dependent gamers and assessed the relationship between video game dependency and the use of online communication platforms.

Methodology: A descriptive, cross-sectional online survey was conducted, utilising the 7-item Gaming Addiction Scale and the Ten Item Personality Inventory to assess video game dependency and personality traits, respectively. A pilot study validated the instruments and informed sample size through power analysis. Data were analysed using IBM SPSS Statistics 30.0. The study was approved by the Ethics Review Committee of the KIU Campus (KIU/ERC/24/175).

Results: The study included 195 active gamers (mean age=23.58) with 86.7% males and 12.3% females. A total of 59% were categorised as video game dependents and 41% as non-dependent. Results indicated significant negative relationships between video game dependency and extraversion, openness and conscientiousness ($p < .05$). A binary logistic regression revealed extraversion as a statistically significant predictor of video game dependency ($p = .037$, $OR = 0.781$). A chi-square test found a significant positive association between video game dependency and the usage of online communication platforms ($\chi^2(1) = 16.50$, $p < .001$, $V = .291$). No significant associations were observed between video game dependency and game genre or gameplay frequency.

Conclusion: The findings suggest that extraversion, openness and conscientiousness play a key role in video game dependency. Additionally, the use of online communication platforms was significantly associated with higher dependency, while game genre and frequency showed no significant relationship.

Keywords: video game dependency, personality traits, online communication platforms, Sri Lanka

OP 04 AB270

The Association Between Sports Performance Anxiety and Aggression among Combat Sports Athletes in Sri Lanka

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Introduction: Combat sports require athletes to maintain high emotional control under intense pressure, where performance anxiety and aggression can crucially influence outcomes. In Sri Lanka, limited research has explored how these psychological variables interact within the unique sociocultural and competitive context of combat sports.

Objective: This study aimed to examine the association between sports performance anxiety (SPA) and aggression and its subdomains among Sri Lankan combat sports athletes.

Methodology: A cross-sectional correlational design was employed with a stratified random sample of 151 combat sports athletes (97 males, 53 females, one other gender; $M = 26.17$, $SD = 4.28$). The Sports Competition Anxiety Test (SCAT), Buss–Perry Aggression Questionnaire (BPAQ), and demographic questionnaire were administered.

Results: Pearson correlation results showed that SPA had a weak positive correlation with overall aggression ($r = .256$, $p = .002$), hostile aggression ($r = .269$, $p < .001$), anger ($r = .284$, $p < .001$), and verbal aggression ($r = .191$, $p = .019$). Spearman's correlation for physical aggression was positive but statistically non-significant ($r = .149$, $p = .072$). One-Way ANOVA and Tukey's post-hoc tests revealed significant differences in aggression levels across SPA levels ($(2, 148) = 13.12$, $p < .001$, $\eta^2 = .15$), with athletes of average SPA showing 17.77-point higher aggression ($p < .001$) than those with low SPA.

Discussion and Conclusion: These findings align with international evidence suggesting that moderate anxiety can elevate aggression by heightening physiological arousal, whereas excessive anxiety may hinder performance. Within Sri Lanka's competitive context, where cultural values emphasise honour, discipline, and national pride, such pressure may amplify the anxiety-aggression link. The results support the frustration–aggression hypothesis, highlighting that managing sports performance anxiety may effectively reduce maladaptive aggression and enhance athletic performance.

Keywords: aggression, anger, hostile aggression, performance anxiety, verbal aggression

OP 05 AB215

Parental Influence on Providing Education to Children in Rural Communities: A Case Study of Molkawa Village, Sri Lanka

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Introduction: Education is a key driver of social mobility in rural communities. In Sri Lanka, parents influence children's access to learning through financial, cultural, and emotional support. Rural households face income, infrastructure, and cultural constraints (e.g., early marriage) that limit educational opportunities.

Objectives: To examine parental engagement in Molkawa village, identify socio-economic and cultural barriers, and explore how parental characteristics relate to educational support

Methodology: A cross-sectional mixed-methods design was adopted. A stratified random sample of 150 households was drawn from the community household registry, with strata based on livelihood type (farming, wage labour, non-farming). Of the 150 selected households, all provided valid responses (100% response rate); unavailable households were replaced. Data were collected via a structured questionnaire on parental engagement and 20 semi-structured interviews with parents, teachers, and community leaders. Quantitative analysis included descriptive statistics, chi-square tests, and exploration logistic regression. Qualitative data were analysed thematically with double coding. The parental engagement scale was adapted from validated studies; internal consistency (Cronbach's alpha) was not calculated, and formal ethics approval was not obtained, though informed consent and confidentiality safeguards were ensured

Results: Quantitative findings showed 62% (n=93) of parents reported their limited schooling hindered their ability to support children academically; 40% (n=60) rarely attended school meetings due to farming work; 30% (n=45) indicated early marriage pressures after the Ordinary Level examination. Chi-square tests showed a significant association between parental education level and engagement ($p < 0.05$). Preliminary regression indicated parental education and income predicted involvement, while qualitative themes highlighted resource constraints, gender norms, and flooding as barriers.

Conclusion: Parental engagement strongly influences rural children's education. Improving outcomes requires awareness programs, flexible school–community schedules, financial support, and policies sensitive to farming and gender norms. Future research should assess reliability and obtain ethical approval.

Keywords: educational accessibility, parental involvement, rural education, socio-economic barriers



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**Poster Presentations
Psychology**

PP 01 AB040

The Relationship Between Stress Resilience Among Advanced Level Students in the Gampaha District of Sri Lanka

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Introduction: Academic stress is a prevalent challenge among Advanced-Level students in Sri Lanka, particularly in competitive districts such as Gampaha. Resilience has emerged as a potential protective factor that may reduce the effects of such stress. This study explores the relationship between stress and resilience in this population.

Objective: To assess the relationship between resilience and stress among Advanced Level students in the Gampaha District of Sri Lanka.

Methodology: A descriptive cross-sectional study was conducted among 377 Advanced Level students attending tuition classes in Gampaha. Data were collected using the DASS-21 and the Brief Resilience Scale. Preliminary testing with the Shapiro–Wilk test confirmed that stress and resilience scores were not normally distributed ($p < 0.05$), a common characteristic of adolescent psychological data due to skewed emotional responses (Micceri, 1989). Accordingly, non-parametric analyses, including Spearman's correlation, Mann–Whitney U, and mean rank comparisons, were employed to ensure valid statistical interpretation.

Results: A strong negative correlation ($r = -0.929$, $p < 0.001$) was found between stress and resilience, indicating that students with higher stress levels exhibited lower resilience. Demographic variations revealed that female students, those in competitive academic streams (e.g., Bio, Technology), and students from semi-government schools and rural areas experienced higher stress and lower resilience levels. Conversely, students from international schools and less competitive streams demonstrated higher resilience.

Conclusion: The study underscores the inverse relationship between stress and resilience among Advanced Level students, highlighting the importance of targeted resilience-building interventions. Enhancing resilience may contribute to better mental health and academic outcomes, particularly for students in high-pressure educational environments.

Keywords: stress, resilience, advanced level, Sri Lanka, coping mechanisms

PP02 AB041

The Association Between Problematic Usage of Mobile Phones and Academic Performance Among Undergraduates in Selected Non-State Universities in Colombo District, Sri Lanka

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Introduction: Mobile phones are widely used by university students, offering academic advantages but also posing potential risks when usage becomes excessive or uncontrolled. Known as Problematic Mobile Phone Usage (PMPU), such behaviour may hinder attention, memory, and academic productivity. Despite global interest, limited research has addressed this issue in Sri Lankan non-state universities.

Objective: To examine the association between PMPU and academic performance among undergraduates in selected non-state universities in the Colombo District.

Methodology: A descriptive cross-sectional study was conducted among 236 undergraduates recruited through convenience sampling. Data were collected via a self-administered online survey that included two validated instruments: the Problematic Use of Mobile Phone Scale (PUMP; $\alpha = 0.94$) and the Academic Performance Scale (APS; $\alpha = 0.77$). Data were analysed using SPSS v28.0. Analytical methods included descriptive statistics, Spearman's correlation, t-tests, and ordinal logistic regression.

Results: A significant negative correlation was observed between PUMP and APS scores ($r = -0.249$, $p < 0.001$). PUMP was a significant predictor of academic performance ($B = -0.128$, $SE = 0.019$, Wald $\chi^2 = 44.93$, $p < 0.001$), with a moderate effect size (Nagelkerke $R^2 = 0.633$). No significant associations were found with gender or total phone use time. High-PUMP participants frequently engaged in social media and gaming activities.

Conclusion: PMPU is significantly associated with reduced academic performance among Sri Lankan undergraduates. Although the study's convenience sample limits generalizability, the findings highlight the importance of integrating digital literacy and self-regulation programs into university curricula. Future research should explore objective and longitudinal measures to deepen insights.

Keywords: problematic mobile phone use, academic performance, undergraduates, PUMP scale, Sri Lanka.

PP03 AB048

The Relationship Between Video Game Dependency and Self-Efficacy among Individuals Aged 18 - 39 Who Utilise Gaming Chat Platforms for Gaming Purposes in Sri Lanka.

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Background: Digital entertainment is increasingly prominent, and video game use has become more integrated into daily life, raising concerns about gaming dependence and its psychological accompaniments.

Objective: This study investigates the relationship between video gaming addiction and self-efficacy of Sri Lankan young adults (aged 18 - 39) who are currently involved in gaming chat platforms.

Methodology: A cross-sectional design was employed with data collected from 314 participants via online questionnaires shared on Discord, Facebook and Reddit. The sample was predominantly male (80%) and mainly comprised participants aged 18 - 26 years. Most participants played video games 3-5 times a week, averaging weekly gaming hours. It consisted of the Gaming Addiction Scale (GAS) and the General Self-Efficacy Scale (GSES).

Results: The results showed participants' medium to high addiction to gaming, with a high majority having high self-efficacy scores. Contrary to classic hypotheses, Spearman's correlation showed a moderate, positive, and significant relationship ($r = .453, p < .001$), indicating that the higher the self-efficacy beliefs, the more gaming behaviours persisted. Multiple regression analysis also confirmed that self-efficacy is a predictor of video game dependency ($\beta = .229, p < .001$), with males and gamers playing MMO and COZY games more likely to be dependent.

Conclusion: The study established a positive relationship between self-efficacy and video game addiction, suggesting that individuals with higher self-efficacy may engage in more active gaming. This contradicts the previous assumption but implies that mastery and confidence could reinforce habitual gaming. The findings highlight the importance of investigating self-efficacy in Sri Lanka's cultural context, where gaming may serve psychological and social functions. Therefore, culture-sensitive interventions targeting cognitive self-regulation and healthy gaming habits are recommended. Longitudinal designs should be applied in future research to examine how sociocultural factors regulate the interaction between self-efficacy and digital dependence.

Keywords: video game dependency, self-efficacy, digital addiction, gaming behaviour, Sri Lanka



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Oral Presentations
Law

OP 01 AB022

Marital Rape: A Veiled Stereotype in Law and Society

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Introduction: Marital rape is non-consensual sexual intercourse within a marital relationship. This issue has persisted through the past centuries, remaining largely unspoken and its victims silenced. This is a result of the many outdated cultural and social aspects that have rooted in the historical belief that what happens in a marriage stays behind closed doors, suppressing this grave issue.

Objectives: This article examines the cultural, religious and social factors contributing to the suppression of marital rape globally and the existing legal measures including further steps that can be taken to abolish marital rape. Various secondary sources, including scholarly articles, case law, from various jurisdictions will be referred to provide a thorough analysis.

Analysis: Marital rape is often justified due to outdated social norms where it is believed that the husband should have sexual access to the wife at any given time, rendering consent a non-existent concept. Marital rape results in psychological trauma including sleep disorders and depression, as well as physical health consequences. Currently, Sri Lanka lacks a comprehensive legal framework criminalising marital rape, except in cases of judicial separation under section 363(a) of the Penal Code. India takes a similar stance with the government arguing that existing laws against sexual violence are sufficient to protect married women. In contrast, the United Kingdom criminalised marital rape in 1992 while global conventions including CEDAW Article 16(1)(c), Article 16(1) of the UDHR and Article 23(4) of the ICCPR emphasises on the equal rights of both spouses though not directly addressing its criminalisation. Non-Governmental Organisations have also attempted to address the issue and raise awareness.

Conclusion: This pressing issue that has victimised countless women throughout history still exists today due to the lack of laws and the challenges of enforcement. However, progress towards eradicating marital rape can be achieved through awareness and legal reforms.

Key words: criminal law, marital rape, CEDAW, Sri Lanka, gender justice

OP 02 AB004

Sri Lanka's Trade Liberalisation Experience: Balancing Growth, Equity, and Competitiveness

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Introduction: In the contemporary globalised context, knowledge and resources are increasingly within immediate reach. International trade transcends national borders to achieve optimal economic gains by providing more opportunities for both consumers and traders. Sri Lanka was the first country in the South Asian region to embrace trade liberalisation in the late 1970s. This initiative aimed to foster economic growth and attract foreign investment, while integrating into the global market. However, trade liberalisation brings both opportunities and challenges that require careful policy balance.

Objectives: This study intended to explore both opportunities and challenges of trade liberalisation in Sri Lanka. Especially in Sri Lanka, the domestic market is vulnerable, and the service sector is also vigorously competitive and limited. Unregulated trade liberalisation could cause numerous threats to the national economy. Sri Lanka should have a strong domestic framework to incorporate the GATT and GATS in light of the WTO regulations. GATS provides four modes of protection under Article II, including: cross-border supply, consumption abroad, commercial presence, and movement of natural persons. Among them, the movement of natural persons needs to be regulated accurately to prioritise the best interests of the domestic market.

Methodology: This study adopts a qualitative methodology to achieve the objectives of the research. Both Primary and secondary resources incorporated, including constitutions, cases, international agreements, and scholarly articles and books.

Result: Effective regulatory frameworks and oversight mechanisms are required to protect the Sri Lankan market.

Conclusion: The study highlights the significance and impact of trade liberalisation, examines gaps in legal regulations, and provides recommendations.

Keywords: economic challenges, legal framework, opportunities, Sri Lanka, trade liberalisation

OP 03 AB082

Toward a Comprehensive Legal Framework for Addressing Cyber Offences in Sri Lanka: Identifying and Mitigating Legislative Gaps

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Introduction: Sri Lanka is experiencing a significant rise in cyber offences, driven by increased internet accessibility and widespread social media use. Existing legal instruments, particularly the Computer Crime Act No. 24 of 2007, are outdated and insufficient to address evolving crimes such as cyberbullying, online harassment, identity theft, and digital financial fraud. This mismatch has weakened enforcement mechanisms and eroded victim trust, particularly among youth and women.

Objective: This study aimed to evaluate the adequacy of Sri Lanka's current cybercrime legislation, identify major legal gaps, and propose an adaptable legal framework tailored to Sri Lanka's context.

Methodology: A mixed-methods approach was used, incorporating quantitative data from the Sri Lanka Police Cyber Crime Division and SL CERT (2021–2024) with 300 questionnaire responses from internet users across demographics. Qualitative insights were obtained through interviews with law enforcement officers and legal professionals. Analytical tools included descriptive statistics, thematic analysis, grounded theory, and supportive use of natural language processing.

Results: Findings revealed critical legislative shortcomings, such as poorly translated or undefined terminology in local language versions, and the exclusion of key provisions from international cybercrime frameworks. Reporting systems were inefficient, with underreporting especially common among women and individuals aged 15–22. In 2024, 5,220 cybercrime cases were reported, representing nearly a 50% increase from 2022.

Conclusion: The study recommends targeted legal reforms specific to Sri Lanka's digital landscape. The proposed framework addresses legal ambiguities, enforcement gaps, and weaknesses in victim protection. Key features include gender-sensitive provisions, clearer translations, streamlined reporting mechanisms, and enhanced inter-agency coordination. Public education and awareness campaigns are also emphasised to encourage reporting and empower vulnerable populations. These measures aim to strengthen Sri Lanka's national cybercrime framework by closing legislative gaps and enhancing inclusivity.

Keywords: cybersecurity, cyber offences, cybercrime legislation, cybercrime underreporting, Sri Lanka



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Poster Presentations
Law

PP 01 AB 199

**'Where words fail, music speaks': If the laws fail, would music prevail?
An Analysis of the Copyright Laws on the
Ownership of a Song and the Related Dilemmas in the
Sri Lankan Music Industry**

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Background: Recent trends in the Sri Lankan music industry show performers seeking legal reforms to strengthen their ownership rights. Currently, copyright law distinguishes between economic and moral rights held by lyricists and composers and performers' rights, which protect vocalists' interests. However, performers often feel unfairly treated compared to lyricists and composers. Additionally, the lack of provisions for compulsory licensing of cover versions and the absence of moral rights for singers complicate matters, allowing distortions of performances.

The Authors, Composers and Publishers Organisation of Sri Lanka (ACPO Sri Lanka) asserts that the existing legal framework, strictly enforced, is sufficient. Nonetheless, industry stakeholders question whether current laws adequately protect performers' rights.

Objective: This study evaluates the adequacy of Sri Lanka's copyright laws, based on international standards and WIPO principles, and examines global trends. It aims to determine whether legal reforms are justified, identify enforcement gaps, and propose a balanced regulatory framework, potentially including a dedicated agency to ensure fair compensation for all parties.

Methodology: Using a mix of normative legal analysis and empirical research, the study reviews relevant laws, regulations, and practices, analysing their real-world impact. Survey and Interview were carried out to collect primary data.

Results & Conclusion: Findings indicate that despite comprehensive legislation, significant shortcomings persist, fueling ongoing debates. The author recommends targeted reforms and suggests adopting flexible arrangements similar to those in countries such as the USA and the UK to enhance the effectiveness of Sri Lanka's music copyright regime.

Keywords: copyright law, economic rights, moral rights, performers' rights regime, licensing, WIPO

PP 02 AB178

Data Protection and Privacy in Digital Commerce: A Sri Lankan Perspective

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Background: Sri Lanka became the first South Asian country to establish autonomous personal data protection law, passing the Personal Data Protection Act No. 9 of 2022. Sri Lanka's Data Protection Act (PDPA) establishes a comprehensive framework for the protection of data privacy rights. PDPA incorporates worldwide best practices from Europe, the United States, and Asia, establishing a strong framework for the protection of personal data. The Act establishes specific rights for data subjects, including the ability to access, amend, erase, and withdraw permission to their personal data. It also requires data controllers and processors to take suitable technological and organisational safeguards to ensure data security and compliance. Further PDPA addresses a variety of challenges, including vendor system security, transaction security and privacy, by requiring compliance and establishing the Data Protection Authority of Sri Lanka to supervise and regulate personal data processing operations. However, implementing the PDPA raises difficulties.

Objectives: This research article aims to investigate the balance that the Act tries to strike between preserving individual privacy rights and establishing an environment favourable to digital innovation. The paper further explores the role of the Data Protection Authority in ensuring compliance. Moreover, this research article examines how the PDPA impacts various stakeholders, including companies, consumers and regulators.

Methodology: Using a doctrinal approach, this research article reviews relevant statutory provisions, relevant case laws and international standards.

Results: This study finds that many companies struggle to match their data processing operations with the Act's obligations owing to a lack of knowledge and resources. Furthermore, while the PDPA establishes a robust legislative foundation, its performance is dependent on regular enforcement and the creation of a complete compliance landscape.

Conclusion: This research concludes that although the PDPA marks a significant advancement in Sri Lanka's digital governance, its success will depend on the collective efforts of the government, businesses and consumers to uphold data protection principles and practices.

Keywords: digital commerce, data protection, personal data protection act, privacy rights, data protection authority.

PP 03 AB002

The Russia–Ukraine Conflict: Sovereignty, International Law, and Geopolitical Tensions

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Introduction: Following the dissolution of the Soviet Union, Ukraine became an independent state, exercising full sovereignty. In 1994, under the Budapest Memorandum, Ukraine surrendered its nuclear weapons in exchange for security assurances from Russia, the United States, and the United Kingdom. Over time, Ukraine's Western alignment, particularly with NATO and the EU, was perceived by Russia as a threat, escalating tensions and culminating in the Russia–Ukraine war.

Objectives: This study examines the conflict through the lenses of state sovereignty, international humanitarian law (IHL), international human rights law (IHRL), and geopolitics, focusing on: (1) The impact on Ukrainian sovereignty; (2) Russia's claims of self-defense; (3) The tension between state power and international law.

Methodology: A qualitative approach was employed, analysing treaties, UN documents, and scholarly literature. Key legal instruments, including the UN Charter were examined to evaluate legality and humanitarian implications.

Results: Findings indicate that Russia's invasion constitutes a violation of Ukraine's sovereignty and breaches of IHL and IHRL. Despite Russia's justification under the principle of self-defense, evidence suggests non-compliance with international law and disproportionate use of force. The conflict has also triggered severe humanitarian crises, displacements, and civilian casualties.

Conclusion: The Russia–Ukraine war exposes the fragility of international legal mechanisms when confronted with major power politics. It highlights the urgent need to strengthen global frameworks that ensure the enforcement of sovereignty, accountability for war crimes, and the protection of human rights within a multipolar international order.

Keywords: russia–ukraine conflict, sovereignty, geopolitics, international humanitarian law, international human rights law



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Oral Presentations
IT

OP 01 AB080

Smart Urban Agroforestry in Sri Lanka: IoT and Data-Driven Approaches to Tree-Crop Management in Urban Settings

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Introduction: Urbanisation in Sri Lanka's major cities is transforming land use, leading to issues related to food security, green space management, and climate resilience. Urban agroforestry, which combines trees and crops in urban farming, is a potential solution. New developments in IoT technology and data analytics enhance tree-crop management in densely populated and resource-limited urban environments.

Objective: This review synthesises global and regional literature on the application of smart technologies in urban agroforestry and evaluates their relevance and adaptability to the Sri Lankan context.

Methodology: A systematic review was conducted examining 87 studies on IoT-based interventions in urban agroforestry, sourced from Scopus, Web of Science, and Google Scholar, covering literature published between 2019 and 2025. The studies span regions including Asia (34), Africa (22), Latin America (18), and others (13), focusing on technologies such as wireless sensor networks, automated irrigation systems, and mobile decision support tools aimed at monitoring soil moisture, pest detection, climate sensing, and crop health diagnostics. A considerable gap was revealed regarding research on Sri Lankan urban environments, where agroforestry practices are underdeveloped.

Results: The results suggest that implementing smart agroforestry systems can markedly improve water efficiency, crop yield, and environmental monitoring in urban settings. Successful case studies include Singapore's vertical farms with climate sensors, Nairobi's community-led smart gardens using affordable IoT solutions, and pilot projects in Colombo featuring automated irrigation and remote diagnostics. The integration of real-time data is proposed to facilitate participatory urban planning and enhance community garden initiatives in Sri Lanka. However, challenges such as costs, lack of technical expertise, and policy deficiencies hinder progress, especially in low-income urban areas.

Conclusion: The review emphasises the need for interdisciplinary research, local pilot projects, and policy support to bolster smart urban agroforestry in Sri Lanka. Drawing from global case studies, the review underscores the feasibility of data-driven approaches to improve urban food security and sustainable green infrastructure. It advocates for developing a conceptual model for smart agroforestry management specifically designed for Sri Lankan cities, taking cues from successful experiences in places like Singapore, Nairobi, and Colombo

Keywords: agroecology, precision agriculture, smart farming technologies, sustainable cities, urban greening

OP 02 AB212

Industry 5.0 and Human-Centric Innovation: The Future of Workforce & Automation in Academia

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Introduction: Industry 4.0's efficiency-first automation has de-emphasised key human priorities in higher education. Unlike 4.0, Industry 5.0 centers sustainability, resilience, and human agency, positioning technology to augment-not replace-educators and learners.

Objectives: We propose a conceptual framework for responsible AI adoption in higher education that prioritises the educator-student relationship and academic governance.

Methodology: We conducted a focused literature review (2018-2025) across Scopus, Web of Science, ERIC, and Google Scholar using predefined keywords; peer-reviewed HE studies, policy frameworks, and seminal models were included; K-12-only and purely technical papers were excluded via two-stage screening. We synthesised the Mentored-AI Loop (MAIL) model-Co-Design, Augment, Mentored Autonomy, Verify & Reflect, Govern-to keep human judgment central in AI-supported learning (Fig. 1).

Results: The synthesis suggests a human-centric workflow can mitigate integrity risks, reduce digital inequities, and scaffold evolving faculty competencies while maintaining pedagogical quality in design, feedback, and assessment. MAIL formalises team-centered strategy and continuous reflection with governance gates. As a conceptual outcome, these claims require empirical testing; we outline pilot and case-study designs as next steps. The framework complements TPACK/SAMR and aligns with human-in-the-loop, responsible-AI principles.

Conclusion: MAIL offers an actionable, ethics-forward pathway to embed Industry 5.0 in higher education-useful to faculty-student teams for safe AI experimentation and to institutions/policy-makers for oversight. Future work will validate MAIL through multi-course pilots and cross-institutional cases.

Keywords: artificial intelligence, higher education, human-centric innovation, industry 5.0, MAIL model, professor–student relationship.

OP 03 AB197

Optimising Real-Time Decision-Making in Autonomous Systems through the Integration of Artificial Intelligence and Edge Computing

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Introduction: The integration of Artificial Intelligence (AI) with Edge Computing represents a significant advancement in the development of autonomous systems, including vehicles, drones, and robotic platforms. While conventional cloud-based architectures often introduce high latency that impairs real-time responsiveness, edge computing enables localised data processing closer to the data source, thereby enhancing system performance. Despite its advantages, the implementation of AI at the edge faces challenges related to computational limitations, scalability, and system reliability.

Objective: This study investigates strategies for effectively deploying AI models on edge devices to enhance real-time decision-making in autonomous systems. It aims to compare the performance of edge-based and cloud-based AI architectures with a focus on latency, accuracy, resilience, and resource utilisation.

Methodology: A mixed-method approach commenced with a literature review identifying current trends and limitations in AI-Edge integration, followed by experimental simulations on both platforms. Different machine learning models were tested using edge computing frameworks to measure performance indicators such as processing latency, computational speed, and decision accuracy under constrained conditions.

Results: Results indicated that edge-deployed AI models could reduce latency by up to 40% while maintaining decision accuracy on par with cloud systems. The edge environment also displayed better responsiveness, resource efficiency, and adaptability in scenarios with limited connectivity. Model evaluations were statistically validated using training and independent datasets from benchmark repositories, employing metrics like Root Mean Square Error (RMSE), Mean Absolute Error (MAE), and F1-score, with a five-fold cross-validation approach to enhance generalizability and mitigate bias. Variance analysis confirmed performance improvements were statistically significant ($p < 0.05$).

Conclusion: Despite these findings, the study acknowledges limitations in edge-AI applications related to power consumption, thermal management, and scalability that may hinder large-scale operations. Future research should focus on specific domains like drones and autonomous vehicles to refine strategies for latency optimisation and energy efficiency, ultimately enhancing system resilience in real-world applications. These insights could further the feasibility of AI-Edge integration in autonomous technologies.

Keywords: artificial intelligence, autonomous systems, edge computing, machine learning, real-time decision-making



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