



GARI International Conference Series (GICS)

Proceedings of the GARI International
Conference on Science, Technology &
Data-Driven Innovation 2026

BOOK OF ABSTRACTS - Volume 1 (2026)

GARI INTERNATIONAL CONFERENCE SERIES (GICS)

**Book of Abstracts of the GARI International
Conference on Science, Technology & Data-Driven
Innovation 2026**

BOOK OF ABSTRACTS - Volume 1 (2026)



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**Advancing Research, Innovation, and Data-Driven
Solutions for Global Impact**

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Conference Chair:

Dr. Jimoh Braimoh

Conference Co-Chair:

Dr. Marta Galindo

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WELCOME ADDRESS BY THE PRESIDENT AND CONFERENCE CHAIR

Dr. Jimoh Braimoh

Founder & President, Global Association for Research and Innovation (GARI)

GARI International Conference on Science, Technology & Data-Driven Innovation 2026 | June 18, 2026

Distinguished keynote speaker, esteemed session chairs and co-chairs, honored guests, colleagues, researchers, industry professionals, students, ladies and gentlemen,

Good morning, good afternoon, and good evening, depending on where you are joining us from around the world.

It is my great pleasure to welcome you to the **GARI International Conference on Science, Technology & Data-Driven Innovation 2026**.

On behalf of the Global Association for Research and Innovation (GARI), I extend my sincere appreciation to every participant, presenter, reviewer, committee member, and partner who has contributed to making this conference possible. Your presence here today reflects a shared commitment to advancing knowledge, fostering innovation, and addressing the complex challenges facing our communities, institutions, industries, and nations.

This conference brings together scholars and professionals from diverse disciplines and geographic regions, united by a common belief that meaningful progress occurs when ideas are shared, perspectives are exchanged, and solutions are developed collaboratively.

In an increasingly interconnected world, the challenges we face - whether in artificial intelligence, sustainability, healthcare, education, governance, engineering, or digital transformation - cannot be solved in isolation. They require interdisciplinary thinking, evidence-based approaches, and global cooperation.

At GARI, we believe that research should not end with publication alone. While scholarly dissemination remains important, we also encourage a broader vision - one that seeks to translate research into innovation, policy, practice, and real-world impact. Knowledge achieves its highest value when it contributes to solving problems, improving lives, informing decision-making, and creating opportunities for sustainable development.

Today's conference reflects that philosophy. Throughout our technical sessions, participants will present research that explores emerging technologies, data-driven solutions, scientific advancements, educational innovations, sustainability strategies, and interdisciplinary approaches to contemporary challenges. We are particularly encouraged by the diversity of topics, institutions, and countries represented in this year's programme, which demonstrates the truly international character of this gathering.

I would also like to recognize our distinguished keynote speaker, session chairs, co-chairs, reviewers, and organizing committee members. Their expertise, dedication, and service have been instrumental in maintaining the academic quality and integrity of this conference.

As we engage in today's presentations and discussions, I encourage each participant to take full advantage of the opportunity to learn, connect, collaborate, and explore new possibilities. The conversations that begin here today may lead to future research partnerships, professional collaborations, policy initiatives, innovative solutions, and lasting friendships across borders.

As a growing international organisation, GARI remains committed to building platforms that support research excellence, mentorship, innovation, scholarly communication, and global collaboration. We look forward to continuing this mission through our conferences, distinguished lectures, mentorship programmes, publications, fellowships, and other initiatives in the years ahead.

Thank you once again for joining us.

I wish you a productive, engaging, and rewarding conference experience.

It is my honor to officially declare the **GARI International Conference on Science, Technology & Data-Driven Innovation 2026** open.

Thank you, and welcome.

ABOUT GARI

The Global Association for Research and Innovation (GARI) is an international scholarly and professional organisation dedicated to advancing research excellence, innovation, interdisciplinary collaboration, mentorship, and global knowledge exchange.

Established to serve researchers, academics, industry professionals, policymakers, innovators, and students across diverse disciplines, GARI provides a platform for generating, disseminating, and translating knowledge into meaningful societal impact. The Association promotes evidence-based solutions to contemporary challenges through conferences, distinguished lectures, publications, mentorship programmes, fellowships, awards, and collaborative research initiatives.

GARI recognizes that many of today's most pressing challenges - including technological transformation, sustainability, healthcare advancement, educational development, digital innovation, and policy reform - require interdisciplinary approaches and international cooperation. As such, the Association actively encourages collaboration across institutions, sectors, and geographic boundaries.

Through its programmes and activities, GARI seeks to:

- Promote high-quality research and scholarly excellence.
- Foster innovation and data-driven problem solving.
- Support interdisciplinary and cross-sector collaboration.
- Encourage mentorship and capacity building among emerging scholars.
- Facilitate scholarly communication and publication opportunities.
- Strengthen global research networks and partnerships.
- Advance the practical application of research findings for societal benefit.

GARI's growing international community reflects its commitment to creating inclusive opportunities for knowledge sharing, professional development, and collaborative discovery. By connecting researchers and practitioners from around the world, the Association contributes to the development of innovative solutions that address local, national, and global challenges.

As part of its long-term vision, GARI is committed to building sustainable platforms that support research impact, professional advancement, innovation leadership, and international collaboration for generations to come.

Vision

To be a globally recognized catalyst for research excellence, innovation, knowledge dissemination, and collaborative problem-solving that advances sustainable development and societal progress.

Mission

To foster research, innovation, mentorship, scholarly communication, and interdisciplinary collaboration through programmes, publications, conferences, and partnerships that generate meaningful impact across communities, industries, institutions, and nations.

Core Values

- Excellence
- Innovation
- Integrity
- Collaboration
- Inclusion
- Impact
- Lifelong Learning
- Global Engagement

Website

www.gariwenjibra.org/

CONFERENCE THEME

Advancing Research, Innovation, and Data-Driven Solutions for Global Impact

The theme of the **GARI International Conference on Science, Technology & Data-Driven Innovation 2026** reflects the growing importance of research, innovation, and evidence-based decision-making in addressing complex global challenges and creating sustainable opportunities for future development.

In an era characterized by rapid technological advancement, digital transformation, environmental uncertainty, healthcare challenges, and evolving societal needs, the ability to generate, analyse, and apply knowledge has become more critical than ever. Data-driven approaches now influence decision-making across virtually every sector, including science, engineering, healthcare, education, governance, business, and public policy.

This conference brings together researchers, practitioners, innovators, educators, industry leaders, and policymakers from diverse disciplines to explore emerging trends, share research findings, and discuss practical solutions that contribute to societal advancement. Through interdisciplinary dialogue and international collaboration, participants examine how science, technology, innovation, and data analytics can be leveraged to improve lives, strengthen institutions, promote sustainability, and accelerate economic and social development.

The conference theme is supported by six interdisciplinary tracks:

Conference Tracks

- **Track A: Artificial Intelligence, Machine Learning & Emerging Technologies**
Exploring advances in artificial intelligence, machine learning, robotics, cybersecurity, digital systems, intelligent automation, and emerging technologies shaping the future of society.
- **Track B: Energy Systems, Sustainability & Engineering**
Examining innovative approaches to sustainability, environmental management, renewable energy, climate resilience, green technologies, and engineering solutions for sustainable development.
- **Track C: Data/Applied Science & Engineering Innovation**
Highlighting applied scientific research, healthcare innovation, pharmaceutical sciences, biomedical technologies, engineering applications, and data-driven scientific advancements.
- **Track D: Interdisciplinary Research & Strategic Innovation (Education)**
Focusing on educational innovation, literacy, learning technologies, instructional effectiveness, teacher development, educational equity, and lifelong learning.

- **Track E: Interdisciplinary Research & Strategic Innovation (Policy & Governance)**
Addressing governance, public policy, economic development, responsible innovation, ethics, sustainability policy, and international relations.
- **Track F: Interdisciplinary Research & Strategic Innovation (Society, Culture & Communication)**
Exploring communication, language, media, culture, organisational behaviour, social development, and human-centered approaches to innovation and societal transformation.

Through these interconnected themes, the conference seeks to encourage meaningful dialogue, inspire innovative thinking, strengthen global partnerships, and promote research that generates measurable impact within communities, institutions, industries, and nations.

The Global Association for Research and Innovation (GARI) believes that research achieves its greatest value when it extends beyond publication to influence policy, practice, innovation, and positive societal change. This conference embodies that philosophy by creating opportunities for knowledge exchange, collaboration, and the development of solutions that address contemporary challenges while contributing to a more sustainable and prosperous future.

CONFERENCE PLANNING AND GOVERNANCE

The GARI International Conference on Science, Technology & Data-Driven Innovation 2026 was developed through a structured planning, review, and governance process led by the Global Association for Research and Innovation (GARI).

Conference Planning Objectives

The planning process was designed to ensure:

- Academic quality and integrity of submissions
- Transparent peer-review procedures
- Effective conference operations and participant experience
- International representation and interdisciplinary engagement
- Sustainable long-term growth of GARI conferences and scholarly programmes

Abstract Review and Evaluation Process

Submitted abstracts were managed through the conference submission platform and assigned to qualified reviewers based on subject-area expertise.

The review process focused on:

- Relevance to conference themes
- Originality and innovation
- Methodological rigor
- Practical and scholarly significance
- Clarity of presentation

Reviewers provided recommendations regarding acceptance, revision, or rejection, and final decisions were made by the Programme Committee.

Technical Operations and Conference Management

The conference planning committee coordinated all virtual conference operations, including:

- Webinar platform management
- Presenter coordination
- Session scheduling
- Technical rehearsals
- Recording and documentation
- Participant support and communication

Special attention was given to ensuring a seamless virtual experience for presenters and attendees joining from multiple countries and time zones.

Programme Development

The conference programme was designed to reflect the interdisciplinary nature of contemporary research and innovation.

Accepted presentations were organised into six thematic tracks:

- Artificial Intelligence, Machine Learning & Emerging Technologies
- Energy Systems, Sustainability & Engineering
- Data/Applied Science & Engineering Innovation
- Interdisciplinary Research & Strategic Innovation (Education)
- Interdisciplinary Research & Strategic Innovation (Policy & Governance)
- Interdisciplinary Research & Strategic Innovation (Society, Culture & Communication)

Session Chairs and Co-Chairs were appointed to facilitate scholarly discussions and maintain academic standards throughout the conference.

Conference Awards and Recognition

To encourage research excellence and innovation, the conference established a structured awards framework recognizing outstanding contributions in scholarship, innovation, interdisciplinary research, mentorship, and presentation quality.

Awards included:

- Best Research Presentation Award
- Emerging Scholar Award
- Innovation & Applied Impact Award
- Interdisciplinary Research Excellence Award
- Outstanding Mentored Research Award

Special recognition was also provided to distinguished mentors, session chairs, and contributors to conference success.

Strategic Vision

As part of its long-term development strategy, GARI adopted a sustainable conference model designed to prioritize quality, impact, and international visibility.

The recommended framework includes:

- One major international conference annually
- One distinguished lecture or awards event annually
- Expansion of mentorship, publication, and collaborative research initiatives
- Development of international scholarly networks and partnerships

This approach supports continuous growth while preserving academic quality, organisational sustainability, and institutional prestige.

Commitment to Excellence

The planning and execution of the GARI International Conference on Science, Technology & Data-Driven Innovation 2026 reflect GARI's commitment to fostering research excellence, interdisciplinary collaboration, innovation, mentorship, and global scholarly engagement.

CONFERENCE SCHEDULE & LEADERSHIP

GARI International Conference on Science, Technology & Data-Driven

Innovation 2026

Date: June 18, 2026

Format: Virtual Conference

Time Zone: Central Standard Time (CST/CDT)

Conference Leadership

- **Conference Chair:** Dr. Jimoh Braimoh
- **Conference Co-Chair:** Dr. Marta Galindo
- **Conference Coordinator:** Dare E. Ehigie
- **Programme Chair:** Prof. Kingsley Chiwuike Ukaoha
- **Technical Programme Chair:** Engr. Ashraf Syed
- **Conference Secretary:** Ms. Oluwatomilola Agbaakin
- **Awards Committee Chair:** Dr. Samuel U. Felix
- **Board Oversight:** Dr. Horeb Anthony
- **Conference Moderator:** Ms. Sam Laliberte
- **Distinguished Keynote Speaker:** Prof. Jagmeet Singh (Jeasy Sehgal)

Distinguished Keynote Speaker

Prof. Jagmeet Singh (Jeasy Sehgal)

Professor of Practice in Virtual Production & VFX Creative Media Industries Institute (CMII),
Georgia State University, Atlanta, United States.



Specialist in Artificial Intelligence, Extended Reality (XR), Immersive Media, and Virtual Production

Beyond the Screen: Affective-Emotive Resonance and the Emergence of Relational AI

Prof. Jagmeet Singh (Jeasy Sehgal) is a Professor of Practice in Virtual Production and VFX at the Creative Media Industries Institute (CMII) at Georgia State University. A pioneer in XR and real-time rendering, Professor Sehgal bridges the gap between **creative storytelling, immersive media, and data-driven scientific research**. He recently received the prestigious Panther Innovations and Research Award for his work on the Vivience AI Initiative, exploring highly realistic digital humans capable of empathy and emotion. His groundbreaking research introduces “**Affective-Emotive Resonance**” (**AER**), a framework for developing Relational AI that builds sustained, ethical, and authentic emotional connections with users. Alongside his academic research, he is the founder of Graphic Monk Productions, a boutique production house and Virtual Production Dojo, an Unreal Engine Authorized Training Academy. Through his interdisciplinary work, Professor Sehgal is actively reshaping the future of human-computer interaction.

Opening Ceremony - 8:00 AM – 8:15 AM CST

Programme

- Welcome Address
- Conference Overview
- Participant Orientation
- Introduction of Distinguished Keynote Speaker

Morning Technical Sessions - 8:15 AM – 10:55 AM CST

Track A

Artificial Intelligence, Machine Learning & Emerging Technologies

Session Chair: Dr. Wan Azani Mustafa

Session Co-Chair: Raji Gopalakrishnan Nair

Topics include:

- Artificial Intelligence
- Machine Learning
- Deep Learning
- Computer Vision
- Healthcare Robotics
- Smart Farming Technologies
- Cybersecurity and Intrusion Detection
- Emerging Digital Technologies

Track B

Energy Systems, Sustainability & Engineering

Session Chair: Engr. Vijay Bhalani

Session Co-Chair: Engr. Thompson Odion Igunma

Topics include:

- Renewable Energy Systems
- Environmental Sustainability
- Climate Change
- Waste Management
- Water Quality and Remediation

- Environmental Engineering
- Green Materials and Circular Economy

Track C

Data/Applied Science & Engineering Innovation

Session Chair: Dr. Lateefat Olanike Aselebe

Session Co-Chair: Prof. Kingsley Chiwuike Ukaoha

Topics include:

- Biomedical Innovation
- Pharmaceutical Sciences
- Molecular Diagnostics
- Food and Nutritional Science
- Smart Waste Technologies
- Applied Engineering Research
- Healthcare Innovation

Distinguished Keynote Session - 11:00 AM – 11:50 AM CST

Moderator: Ms. Sam Laliberte

Distinguished Keynote Speaker: Prof. Dr. Jagmeet Singh (Jeasy Sehgal)

Keynote Address

Beyond the Screen: Affective-Emotive Resonance and the Emergence of Relational AI

Conference Transition - 11:50 AM – 12:00 PM CST

Afternoon Technical Sessions - 12:00 PM – 3:00 PM CST

Track D

Interdisciplinary Research & Strategic Innovation (Education)

Session Chair: Dr. Marta Galindo

Session Co-Chair: Dr. Gyanendra Rawat

Topics include:

- Educational Innovation
- Literacy and Numeracy
- Career Development
- Media and Information Literacy
- Educational Equity
- Language Education

Track E

Interdisciplinary Research & Strategic Innovation (Policy & Governance)

Session Chair: Prof. Dr. Mehmood Ul Hassan

Session Co-Chair: Jothimani Kanthan Ganapathi

Topics include:

- Public Policy
- Governance
- Economic Development
- Foreign Direct Investment
- Ethics and Responsible Innovation
- Environmental Sustainability Policy
- International Relations

Track F

Interdisciplinary Research & Strategic Innovation (Society, Culture & Communication)

Session Chair: Prof. (Dr.) Poorva Ranjan

Session Co-Chair: Dr. Horeb Anthony

Topics include:

- Communication Studies
- Sociolinguistics
- Criminal Justice
- Social Media Studies
- Organisational Behaviour
- Cultural and Media Research

Closing Ceremony & Awards - 3:00 PM – 3:30 PM CST

Conference Chair: Dr. Jimoh Braimoh

Awards Committee Chair: Dr. Samuel U. Felix

Conference Awards

- Best Research Presentation Award
- Emerging Scholar Award
- Innovation & Applied Impact Award
- Interdisciplinary Research Excellence Award
- Outstanding Mentored Research Award

Special Recognitions

- Outstanding Mentor Recognition
- Distinguished Session Chair Recognition

Closing Activities

- Closing Remarks
- Group Photograph

SESSION CHAIRS AND CO-CHAIRS

Track	Session Title	Chair	Co-Chair
Track A	Artificial Intelligence, Machine Learning & Emerging	Dr. Wan Azani Mustafa	Raji Gopalakrishnan Nair

Track	Session Title	Chair	Co-Chair
	Technologies		
Track B	Energy Systems, Sustainability & Engineering	Engr. Vijay Bhalani	Engr. Thompson Odion Igunma
Track C	Data/Applied Science & Engineering Innovation	Dr. Lateefat Olanike Aselebe	Prof. Kingsley Chiwuike Ukaoha
Track D	Interdisciplinary Research & Strategic Innovation (Education)	Dr. Marta Galindo	Dr. Gyanendra Rawat
Track E	Interdisciplinary Research & Strategic Innovation (Policy & Governance)	Prof. Dr. Mehmood UI Hassan	Jothimani Kanthan Ganapathi
Track F	Interdisciplinary Research & Strategic Innovation (Society, Culture & Communication)	Prof. (Dr.) Poorva Ranjan	Dr. Horeb Anthony

ACCEPTED ABSTRACTS

The abstracts contained in this volume were accepted for presentation at the **GARI International Conference on Science, Technology & Data-Driven Innovation 2026**, organised by the **Global Association for Research and Innovation (GARI)** on June 18, 2026.

All abstracts were reviewed for relevance to the conference theme and aligned with the conference's commitment to advancing interdisciplinary scholarship, innovation, and evidence-based solutions to contemporary global challenges. The accepted contributions represent diverse disciplinary perspectives spanning artificial intelligence, engineering, sustainability, healthcare, education, governance, communication, and social innovation.

The abstracts are organised according to the official conference tracks and presentation sessions.

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TRACK A – Artificial Intelligence, Machine Learning & Emerging Technologies

Predictive Modeling of Au–Fe₃O₄ Hybrid Nanofluid Flow in a Porous Cylindrical Tumor Domain During Nanocryosurgery Using Bivariate Spectral Solvers and Levenberg–Marquardt-Trained Neural Networks

Authors: A.S. Adeyemo, L.O. Aselebe, A.O. Aliu, S.A. Adio, K.A. Salaudeen

Institutions: University of KwaZulu-Natal, South Africa; Federal School of Surveying, Nigeria; Rufus Giwa Polytechnic, Nigeria; Cephas Health Research Initiative, Nigeria; Emmanuel Alayande University of Education, Nigeria

Abstract: Nano cryosurgery has recently gained attention as an advanced strategy to improve tumor ablation by overcoming the limitations of conventional cryosurgery, such as incomplete freezing and unintended damage to healthy tissues. In this study, a predictive mathematical model is developed to describe the flow of an Au–Fe₃O₄ hybrid nanofluid within a porous cylindrical tumor domain during nanocryosurgery. Gold and magnetite nanoparticles are injected directly into the affected tumor tissue to enhance local thermal conductivity and magnetic responsiveness, thereby improving freezing efficiency. The surrounding fluid is blood, modeled as a Casson fluid to capture its non-Newtonian behaviour. The porous tumor matrix is described using the Darcy model. Physical effects include temperature-dependent variable viscosity, thermal radiation, and viscous dissipation. The governing equations are solved using the Bivariate Spectral Local Linearization Method (BSLLM), while an Artificial Neural Network surrogate model is trained using the Levenberg–Marquardt algorithm. Results demonstrate enhanced heat transfer performance and high predictive accuracy. The study presents a robust computational framework for optimizing nanocryosurgery protocols and supporting real-time treatment planning.

Mathematical Modeling of Fe₃O₄ Nanoparticle and Probe-Based Thermal Ablation with Machine Learning Outcomes Prediction

Authors: L.O. Aselebe, A.S. Adeyemo, S.A. Adio, A.O. Aliu, S.T. Adio, K.A. Salaudeen

Institutions: Federal School of Surveying, Nigeria; University of KwaZulu-Natal, South Africa; Cephas Health Research Initiative, Nigeria; Rufus Giwa Polytechnic, Nigeria; Emmanuel Alayande University of Education, Nigeria

Abstract: Thermal ablation is a minimally invasive cancer treatment approach that employs localized heating to destroy tumor tissues. This study develops a Pennes bioheat model

incorporating both Fe_3O_4 nanoparticles and probe-based heating to evaluate enhanced thermal ablation performance. The governing equations were solved using the Crank–Nicolson finite difference method. Three treatment scenarios were evaluated: nanoparticle heating alone, probe heating alone, and a hybrid approach. Results demonstrate that the hybrid model achieved complete irreversible damage throughout the tumor while maintaining safe temperatures in surrounding healthy tissue. Machine learning algorithms including Gaussian Process Regression, Artificial Neural Networks, and Ensemble Models were trained on generated treatment data and achieved high predictive accuracy. The findings support the use of hybrid thermal ablation models as clinical decision-support tools for personalized cancer therapy.

An Adaptive Deep Learning Framework for Energy-Efficient Anomaly Detection in IoT Sensor Networks

Authors: Gigi Joseph, George Joseph Susheel

Institution: Kristu Jyoti College of Management and Technology, India

Abstract: IoT sensor networks generate large volumes of data requiring intelligent real-time analysis. This study proposes an adaptive deep learning framework utilizing autoencoder-based neural networks for anomaly detection in IoT environments. The framework incorporates an energy-aware communication strategy and edge-cloud architecture to reduce latency and extend device lifetime. Using UNSW-NB15 and IoT-23 datasets, experimental results demonstrate improved detection accuracy, lower false-positive rates, and enhanced energy efficiency compared with traditional methods. The proposed framework provides a scalable solution for secure and sustainable IoT deployments.

Transformer-Based Multi-Class Intrusion Detection for Smart Farming Environments

Author: Hamza Saleem

Institution: Government College University Faisalabad, Pakistan

Abstract: Smart agricultural systems depend heavily on interconnected IoT infrastructure and are increasingly vulnerable to cyberattacks. This research applies transformer-based attention mechanisms to intrusion detection within smart farming environments. Using the Farm-Flow dataset, the study addresses class imbalance challenges while improving detection performance for rare attack categories. The proposed model employs self-attention

mechanisms to identify critical patterns within agricultural network traffic. Findings suggest that transformer-based approaches significantly enhance intrusion detection effectiveness and contribute to the security of smart agriculture systems.

Hybrid A*-DWA Navigation with Deep Reinforcement Learning for Autonomous Medical Delivery Robots in Simulated Hospital Ward Environments

Author: Akhtar Rasool

Institution: University of Milano-Bicocca, Italy

Abstract: Autonomous delivery robots offer significant benefits in healthcare settings by reducing workload and improving operational efficiency... The research contributes to the development of intelligent healthcare robotics and future autonomous medical logistics systems.

A Deep Learning-Based Computer Vision Model for Real-Time Face Mask Detection and Compliance Monitoring

Authors: Soumya Koshy, George Joseph Susheel

Institution: Kristu Jyoti College of Management and Technology, India

Abstract: This study presents a deep learning-based computer vision model for automated face mask detection and compliance monitoring in public environments. A hybrid MobileNet–ResNet architecture is employed to provide efficient and accurate classification under varying environmental conditions. The model was trained using approximately 45,000 images from public and custom datasets and optimized for edge deployment. Experimental results demonstrate high accuracy, robustness, and real-time performance, supporting public health monitoring and safety compliance applications.

TRACK B – Energy Systems, Sustainability & Engineering

Green Synthesis of Bio-Silica Xerogel from Corn Husk for Wastewater Dye Treatment

Authors: Ibrahim Olaniyi Adetunji, O.G.W. Tabowei, L.O. Osifeko, C.T. Onwordi

Institution: Lagos State University, Lagos, Nigeria

Abstract: The increasing production and consumption of maize in Nigeria generate substantial quantities of corn husk waste, much of which remains underutilized. This study explores the valorization of corn husk as a sustainable source of silica for the synthesis of bio-silica xerogel through the sol-gel method. The synthesized material was evaluated as a low-cost adsorbent for the removal of Rhodamine 6G, a cationic dye commonly found in industrial wastewater. Characterization analyses revealed a highly porous structure with interconnected pores suitable for adsorption applications. Fourier Transform Infrared Spectroscopy confirmed successful silica xerogel formation, while Energy Dispersive X-ray Spectroscopy demonstrated significant dye uptake after adsorption. Thermogravimetric and Transmission Electron Microscopy analyses further verified the structural integrity and adsorption efficiency of the material. The optimal adsorption conditions were observed at a pH of 2 and a contact time of 10 minutes. Adsorption followed the Langmuir isotherm model, indicating monolayer adsorption behaviour. The findings highlight the potential of corn husk-derived silica xerogel as an environmentally friendly, cost-effective, and sustainable material for wastewater remediation.

Keywords: Bio-silica xerogel, corn husk, adsorption, wastewater treatment, Rhodamine 6G, sustainable materials

Comparative Evaluation of Cellulose Nanocrystals from Nigerian Maize Cob and Maize Husk: Extraction Yield and Efficiency in Methyl Orange Dye Adsorption

Authors: Adebukola Deborah Adebayo, O.O. Olaoye, O.O. Tovide, O.A. Adewusi, C.T. Onwordi

Institution: Lagos State University, Lagos, Nigeria

Abstract: Water contamination by synthetic dyes remains a major environmental challenge, particularly in developing countries where low-cost remediation technologies are urgently needed. This study comparatively evaluates cellulose nanocrystals (CNCs) extracted from maize cob and maize husk agricultural residues for their extraction yield, physicochemical properties, and adsorption efficiency in removing Methyl Orange dye from aqueous solutions.

Cellulose nanocrystals were synthesized through alkali delignification, bleaching, and sulfuric acid hydrolysis. Characterization techniques including SEM, EDX, XRD, TEM, and TGA revealed distinct structural and thermal properties between the two materials. Maize cob-derived CNCs exhibited superior crystallinity, thermal stability, and adsorption capacity compared to maize husk-derived CNCs. Batch adsorption experiments demonstrated optimal dye removal at acidic pH conditions and confirmed spontaneous and exothermic adsorption behaviour. Statistical analysis showed significant differences between both adsorbents. The findings establish maize cob-derived CNCs as a promising and sustainable adsorbent for industrial wastewater treatment.

Keywords: Cellulose nanocrystals, maize cob, maize husk, adsorption, wastewater remediation, sustainability

Assessment of Methane Emissions in Municipal Solid Waste Dumpsites in Lagos State

Authors: Okechukwu Godgift Walter Tabowei, L.O. Osifeko, N.A. Akinsanya, O.O. Adeyi, C.T. Onwordi

Institution: Lagos State University School of Basic and Advanced Studies, Lagos, Nigeria

Abstract: Municipal solid waste dumpsites represent significant sources of methane emissions, contributing substantially to greenhouse gas accumulation and climate change. This study assessed methane emissions from major dumpsites in Lagos State using the Intergovernmental Panel on Climate Change (IPCC) landfill gas estimation model. Waste generation data spanning 2000–2014 were obtained from the Lagos State Waste Management Authority, while future projections from 2015–2030 were estimated using population growth and per capita waste generation rates. Methane emissions were calculated based on waste characterization and generation statistics. Results indicated increasing waste generation trends and corresponding methane emissions. Methane production increased from approximately 74.05 Gg/year in 2000 to 79.15 Gg/year in 2014, with projected emissions reaching 341.85 Gg/year by 2030. The study highlights the urgent need for methane capture technologies and improved waste management infrastructure to mitigate environmental impacts.

Keywords: Methane emissions, landfill gas, municipal solid waste, Lagos State, climate change, waste management

Emerging Contaminants in Groundwater and Women's Reproductive Health: Implications for Women Living Near Closed Dumpsites in Lagos State, Nigeria

Authors: Anko Senami Oluwafunmilola, A.O. Majolagbe, A.A. Adejare, C.T. Onwordi

Institution: Lagos State University, Lagos, Nigeria

Abstract: Emerging contaminants, particularly endocrine-disrupting chemicals (EDCs), have become significant environmental and public health concerns due to their persistence, mobility, and biological activity. Groundwater systems in rapidly urbanizing regions such as Lagos State remain vulnerable to contamination through leachate migration from poorly managed or abandoned dumpsites. This review synthesizes current evidence regarding major classes of EDCs, including bisphenol A, phthalates, pesticides, heavy metals, dioxins, parabens, and per- and polyfluoroalkyl substances (PFAS). Particular attention is given to their environmental pathways, mechanisms of endocrine disruption, and impacts on women's reproductive health. The review highlights associations between exposure to these contaminants and reproductive disorders such as infertility, menstrual irregularities, endometriosis, polycystic ovarian syndrome, adverse pregnancy outcomes, and impaired fetal development. The study emphasizes the need for enhanced groundwater protection, improved waste management policies, and greater integration of environmental exposure assessment into public health interventions.

Keywords: Emerging contaminants, groundwater pollution, endocrine disruptors, reproductive health, environmental toxicology

Energy Efficiency, CO₂ Emissions, and Environmental Sustainability

Author: Oghenetega Dafiewhare

Institution: University of Ibadan, Nigeria

Abstract: Energy efficiency has emerged as a critical strategy for reducing greenhouse gas emissions and achieving environmental sustainability. As nations strive to meet Sustainable Development Goal 7, improving energy efficiency remains central to efforts aimed at providing affordable, reliable, and sustainable energy while simultaneously reducing carbon emissions. This study investigates the relationship between energy efficiency improvements and carbon dioxide emission reductions in Nigeria and Ghana. Utilizing secondary data obtained from international development agencies and national energy reports, the study employs panel-data analysis to evaluate the effectiveness of energy efficiency measures, renewable energy adoption, reduced energy intensity, and industrial process optimization. The findings are expected to provide valuable evidence regarding the role of energy efficiency in climate change mitigation and sustainable development within West Africa. The study also offers policy recommendations for governments and international stakeholders seeking to promote low-

carbon development pathways and sustainable energy transitions.

Keywords: Energy efficiency, CO₂ emissions, sustainability, climate change, SDG 7, West Africa

Comparative Assessment of Climate Change Impacts on Agrarian Livelihoods: A Study of Delhi and Jojari River Basin, Jodhpur

Authors: Sweta Jain, Surbhi Jain, Kashvi Kashvi

Institutions: Vivek PG Mahavidhalaya, Jaipur, India; Maulana Azad University, Jodhpur, India

Abstract: Climate change continues to intensify agrarian vulnerability across diverse ecological regions, necessitating comparative analyses of its impacts on agricultural livelihoods. This study examines climate-related challenges affecting farmers in Delhi's peri-urban agricultural zones and the Jojari River Basin in Jodhpur, Rajasthan. Using a mixed-methods approach incorporating surveys, interviews, field observations, and secondary climatic data, the research identifies key climate stressors affecting agricultural productivity. Farmers in Delhi face irregular rainfall, heat waves, and flooding, whereas farmers in the Jojari Basin contend with chronic water scarcity, salinity, and declining soil quality. Despite differing environmental contexts, both regions experience similar socioeconomic consequences, including income instability, increased production costs, and reduced resilience among smallholder farmers. The study highlights the importance of region-specific adaptation strategies and climate-resilient agricultural policies that integrate water management, technological innovation, and institutional support mechanisms.

Keywords: Climate change, agriculture, agrarian livelihoods, resilience, adaptation, sustainability

TRACK C – Data/Applied Science & Engineering Innovation

Non-Invasive Breast Cancer Detection via the Tryptophan–Kynurenine Ratio: Correlating Indoleamine 2,3-Dioxygenase 1 Expression with Cellular Microstructure

Authors: Priyanka Nayak, Jaishriram Rathored

Institution: Datta Meghe Institute of Higher Education and Research, Wardha, Maharashtra, India

Abstract: Breast cancer progression is closely associated with the activity of Indoleamine 2,3-Dioxygenase 1 (IDO1), an enzyme that contributes to immune suppression through the depletion of tryptophan and accumulation of kynurenine. This metabolic reprogramming facilitates tumor immune evasion and supports disease progression. While the biological significance of the tryptophan–kynurenine pathway is well established, its application as a non-invasive diagnostic biomarker remains an area of significant research interest. This study seeks to establish a diagnostic signature by evaluating blood concentrations of tryptophan and kynurenine, assessing IDO1 gene expression, and examining associated microstructural changes in cancer cells using high-resolution imaging techniques. A comparative cross-sectional study involving breast cancer patients and healthy controls will be conducted using ELISA, RT-PCR, and scanning electron microscopy. The findings are expected to establish a novel relationship between metabolic biomarkers, gene expression patterns, and cellular morphology, thereby supporting the development of a high-precision, non-invasive diagnostic platform for early breast cancer detection.

Keywords: Breast cancer, IDO1, tryptophan, kynurenine, biomarkers, molecular diagnostics

Mitochondrial DNA Mutations as Emerging Biomarkers in Molecular Diagnostics of Breast and Prostate Cancer

Authors: Tanushree Budhbaware, Jaishriram Rathored

Institution: Datta Meghe Institute of Higher Education and Research, Wardha, Maharashtra, India

Abstract: Mitochondrial DNA (mtDNA) mutations have emerged as important molecular markers in cancer diagnostics due to their involvement in cellular energy regulation, apoptosis, and metabolic reprogramming. Because mitochondrial DNA lacks protective histones and possesses limited repair capacity, it is particularly susceptible to mutation accumulation during

carcinogenesis. This study investigates the prevalence and diagnostic significance of mtDNA mutations in breast and prostate cancer patients. Using high-throughput sequencing and PCR-based approaches, the research aims to identify mutation patterns associated with disease progression and clinical outcomes. Correlations between genetic alterations and clinicopathological characteristics will be examined to evaluate their prognostic value. The study is expected to contribute to the development of sensitive, non-invasive molecular diagnostic tools and support personalized treatment strategies in oncology.

Keywords: Mitochondrial DNA, breast cancer, prostate cancer, molecular diagnostics, biomarkers, precision medicine

Nutritional Composition of Complementary Diet Produced from Millets, Tiger-Nuts and Date

Authors: O.A. Olugbamigbe, Bello Monsurat, A.O. Loto, N.V. Okon

Institution: Federal University of Education, Ondo, Nigeria

Abstract: Complementary diets play a critical role in supporting the nutritional needs of infants and young children following exclusive breastfeeding. This study evaluated the nutritional quality of complementary food formulations produced from millet, tiger-nut, and date fruit. Three composite flour formulations were prepared using varying proportions of millet, tiger-nut, and date, while 100% millet flour served as the control. Proximate composition, mineral content, anti-nutritional factors, and sensory characteristics were analysed using standard methods. Results revealed significant improvements in protein, mineral, and overall nutritional content among the composite formulations. Sensory evaluation indicated that the formulation containing 80% millet, 15% tiger-nut, and 5% date fruit achieved the highest acceptability among panelists while also providing favorable nutrient levels. The study demonstrates the potential of locally available ingredients in producing affordable and nutrient-rich complementary foods.

Keywords: Complementary feeding, millet, tiger-nut, date fruit, infant nutrition, food security

Mechanical, Compaction and Compressibility Characteristics of Modified *Cyperus esculentus* Starches in Directly Compressed Metronidazole Tablet Formulations

Authors: Judith E. Azaka, Sylvester O. Eraga, Matthew I. Arhewoh, Ogbonna Okorie

Institution: University of Benin, Benin City, Nigeria

Abstract: Starch remains one of the most widely utilized pharmaceutical excipients due to its availability, affordability, biodegradability, and biocompatibility. This study evaluates the mechanical, compaction, and compressibility characteristics of modified starches derived from *Cyperus esculentus* tubers in directly compressed metronidazole tablet formulations. Native starch extracted from tiger nut tubers was modified through acid hydrolysis, pregelatinization, and enzyme hydrolysis. The resulting starches were used in direct compression tablet formulations and evaluated using Heckel and Kawakita analyses to determine their deformation and compressibility characteristics. Results demonstrated that enzyme-hydrolyzed starch exhibited the highest compressibility and favorable tablet mechanical properties. The findings suggest that modified *Cyperus esculentus* starch may serve as a viable alternative to microcrystalline cellulose in pharmaceutical tablet manufacturing.

Keywords: Modified starch, pharmaceutical excipients, direct compression, metronidazole tablets, Heckel analysis

Sustainable Recycling and Reuse of Dental Gypsum Waste: A Green Dentistry Initiative for Circular Resource Utilization

Authors: Sachin Potdar, Arti Gachake, Dattatray Jadhav, Atul Ayare

Institution: Bharati Vidyapeeth Deemed University College of Dental Sciences and Hospital, Pune, India

Abstract: Dental institutions generate substantial quantities of gypsum-based waste from clinical and laboratory procedures, much of which is disposed of in landfills. This study proposes a sustainable framework for recycling and reusing dental gypsum waste in alignment with circular economy principles and green dentistry practices. The project focuses on developing protocols for collection, segregation, decontamination, and reprocessing of dental gypsum into reusable materials suitable for educational and selected clinical applications. Environmental and economic impacts will be evaluated using waste reduction metrics, life cycle assessment methodologies, and cost-benefit analyses. The proposed model aims to reduce environmental burdens, lower material costs, and establish a scalable strategy for sustainable resource utilization in dental education and healthcare institutions.

Keywords: Green dentistry, gypsum recycling, circular economy, healthcare sustainability, waste management

IoT-Enabled Smart Waste Management System Using Computer Vision for Automated Waste Segregation

Author: Tintu Varghese

Institution: Kristu Jyoti College of Management and Technology, Kerala, India

Abstract: Effective waste management is essential for sustainable urban development and environmental protection. This study presents an Internet of Things (IoT)-enabled smart waste management system that utilizes computer vision techniques for automated waste classification and segregation. The system employs camera-equipped smart bins that capture waste images and classify them into biodegradable, recyclable, and hazardous categories using deep learning algorithms. Classification outcomes are integrated with IoT sensor data, including fill-level monitoring, to optimize collection schedules and operational efficiency. Experimental evaluation demonstrates improved segregation accuracy and resource utilization compared to conventional waste management approaches. The proposed framework offers a scalable solution for smart city deployment and contributes to sustainable urban infrastructure development.

Keywords: Internet of Things, computer vision, waste segregation, smart cities, sustainability, automation

TRACK D – Interdisciplinary Research & Strategic Innovation (Education)

Transforming School Libraries into Functional Learning Spaces: A Study on Enhancing Reading Culture and Foundational Literacy and Numeracy Outcomes in Rural Elementary Schools

Author: Atul Bamrara

Institution: The ICFAI University, Dehradun, India

Abstract: Despite the availability of books, library grants, and educational resources, school libraries in many rural elementary schools remain underutilized. This limits their potential to improve reading culture and support foundational literacy and numeracy (FLN) outcomes among young learners. This study investigates how transforming traditional libraries into student-centered learning environments can positively influence reading habits, classroom engagement, and academic achievement. Using a mixed-methods research design, the study combines quantitative data from academic records and school surveys with qualitative insights obtained through interviews with teachers, school administrators, and written reflections. The intervention includes open-access book displays, reading corners, structured library sessions, home book circulation initiatives, and community participations. The study is expected to demonstrate that increasing accessibility and learner autonomy significantly enhances reading interest, classroom participation, and FLN competencies. The findings aim to provide a scalable and cost-effective model for strengthening reading ecosystems in resource-constrained educational settings.

Keywords: School libraries, reading culture, foundational literacy and numeracy, educational innovation, rural education

Influence of Self-Concept on Academic Performance of Senior Secondary School Students in Nasarawa Local Government Area of Nasarawa State

Authors: Asuquo Samuel Princewill, Godspower Princewill Asuquo

Institutions: Crifosec Nigeria Limited & Nasarawa State University, Keffi, Nigeria; Akwa Ibom State University, Nigeria

Abstract: Self-concept plays a critical role in shaping students' attitudes, motivation, and academic outcomes. This study examined the influence of academic, social, and emotional self-concept on the academic performance of senior secondary school students in Nasarawa Local

Government Area of Nasarawa State, Nigeria. A descriptive survey research design was employed involving 346 students selected through a multi-stage sampling process. Data were collected using the Self-Concept Scale (SCS) and students' academic records. Statistical analyses included descriptive measures and hypothesis testing using the t-test at the 0.05 level of significance. Findings revealed that academic self-concept, social self-concept, and emotional self-concept each significantly influenced students' academic performance. The study concludes that strengthening positive self-concept among students can improve educational outcomes and recommends targeted interventions by educators, parents, and policymakers to support student development.

Keywords: Self-concept, academic achievement, secondary education, student development, educational psychology

The Influence of Career Counselling on Secondary School Students' Career Awareness and Choice in Nasarawa Eggon Local Government Area of Nasarawa State

Authors: Maryamu Obidah, Asuquo Samuel Princewill

Institutions: Federal Teaching Hospital, Gombe, Nigeria; Crifosec Nigeria Limited & Nasarawa State University, Nigeria

Abstract: Career counselling is essential for helping students make informed educational and occupational decisions in increasingly complex labor markets. This study examined the influence of career counselling on career awareness and career choice among secondary school students in Nasarawa Eggon Local Government Area of Nasarawa State, Nigeria. A sample of 250 students participated in the study using a structured questionnaire designed to assess career awareness and decision-making. Results demonstrated that career counselling significantly enhanced students' understanding of job roles, labor market information, workplace expectations, and required professional competencies. The study further found that students who received counselling services were more likely to make realistic and informed career decisions. Recommendations include strengthening guidance and counselling services, increasing the availability of qualified counsellors, and improving access to career development resources in schools.

Keywords: Career counselling, career awareness, career choice, secondary education, guidance services

Media and Information Literacy and Vulnerability to Misinformation Among Older Adults in Cabuyao, Laguna

Author: Johnson A. Rebosura

Institution: Pamantasan ng Cabuyao, Laguna, Philippines

Abstract: The rapid growth of digital technologies has transformed communication and information access worldwide. However, the widespread availability of social media platforms and artificial intelligence-generated content has also increased the prevalence of misinformation, fake news, and manipulated media. Older adults are particularly vulnerable to these challenges due to lower levels of digital literacy and limited familiarity with emerging technologies. This study investigates the relationship between media and information literacy and susceptibility to misinformation among older adults in Cabuyao, Laguna, Philippines. The research explores how media literacy competencies influence the ability of senior citizens to identify misleading information, deepfakes, online scams, and other forms of digital deception. The findings are expected to provide valuable insights for the development of educational interventions aimed at strengthening digital literacy, critical thinking, and online safety among older adults. The study contributes to ongoing efforts to promote responsible information consumption and digital inclusion within aging populations.

Keywords: Media literacy, misinformation, digital literacy, older adults, deepfakes, information integrity

Educational Inequality and Social Capital: A Study of Access and Participation in Public Education Systems

Author: Akshita Raghuvanshi

Institution: The ICFAI University, Dehradun, India

Abstract: Educational inequality continues to present significant challenges to equitable access and participation within public education systems, particularly in developing economies. This study examines the role of social capital in shaping educational opportunities and outcomes among students from diverse socioeconomic backgrounds. Drawing upon the theoretical frameworks of Bourdieu and Coleman, the study investigates how family networks, community support systems, and institutional structures influence access to quality education, student participation, and academic progression. A mixed-methods approach combines quantitative analyses of participation and achievement indicators with qualitative interviews involving students, educators, and education administrators. Particular attention is given to marginalized populations, including first-generation learners and students from economically disadvantaged communities. The findings are expected to inform educational policies aimed at promoting equity, inclusion, and meaningful participation across public education systems.

Keywords: Educational inequality, social capital, educational access, public education, equity, inclusion

Teaching French for Tourism Using Task-Based Learning (TBL) Approach

Authors: Josephine Egbe Awanbor, Gloria Bassey Igri Okon

Institutions: University of Benin, Benin City, Nigeria; University of Calabar, Calabar, Nigeria

Abstract: The growing internationalization of tourism requires language instruction that emphasizes practical communication skills and real-world application. This study examines the effectiveness of the Task-Based Learning (TBL) approach in teaching French for tourism and hospitality purposes. A twelve-week intervention involving undergraduate tourism students exposed learners to authentic tourism-related tasks such as visa applications, travel reservations, accommodation arrangements, and destination planning. The instructional design focused on developing communicative competence through practical engagement with realistic scenarios. Results demonstrated notable improvements in listening and speaking abilities, increased learner confidence, and enhanced vocabulary acquisition. The findings support the use of task-based methodologies as effective strategies for teaching French for Specific Purposes (FSP), particularly within tourism and hospitality education.

Keywords: French for tourism, task-based learning, French for Specific Purposes, language pedagogy, tourism education

TRACK E – Interdisciplinary Research & Strategic Innovation (Policy & Governance)

The Geo-Politics and Economics of Pakistan, and Its Global Implications

Author: Ashraf Kamal

Institution: Toronto Metropolitan University, Canada / Pakistan

Abstract: Since gaining independence, Pakistan has occupied a strategically significant position in global geopolitics and international economic relations. Its geographic location, diplomatic engagements, and involvement in major regional and international developments have contributed to shaping political and economic interactions across Asia and beyond.

This paper examines Pakistan's historical and contemporary geopolitical role, including its participation in Cold War alliances, contributions to diplomatic engagement between major global powers, and involvement in regional peace and security initiatives. Particular attention is given to Pakistan's facilitation of diplomatic relations between the United States and the People's Republic of China during the early 1970s, a development that significantly influenced global economic integration. The study further explores Pakistan's evolving position within contemporary international affairs and evaluates the broader implications of its geopolitical engagements for regional stability, international trade, and global economic cooperation.

Keywords: Geopolitics, international relations, economic diplomacy, Pakistan, global governance, international cooperation

Human Capital Development: A Key Determinant of Foreign Direct Investment Inflow in Nigeria

Author: Nnamdi Patrick Eziefule

Institution: Dominican University, Nigeria

Abstract: Foreign Direct Investment (FDI) remains an important driver of economic growth, technological advancement, and employment generation in developing economies. This study investigates the role of human capital development in attracting FDI inflows into Nigeria using annual time-series data spanning 1980–2022. The research employs Autoregressive Distributed Lag (ARDL) and Vector Autoregression (VAR) models to examine both short-run and long-run relationships between FDI inflows and selected human capital indicators, including educational expenditure, healthcare expenditure, literacy rates, life expectancy, labor force participation, and GDP per capita. The study aims to determine the extent to which investments in human capital

influence investor confidence and enhance Nigeria's competitiveness as an investment destination. Findings are expected to provide policy recommendations focused on education reform, workforce development, vocational training, institutional strengthening, and public-private partnerships.

Keywords: Human capital development, foreign direct investment, economic development, labor force, Nigeria

Does Resource Dependency Undermine Environmental Sustainability? Evidence from Resource-Intensive and Non-Resource-Intensive West African Economies

Author: Adetomiwa Adesokan

Institution: University of Nevada, Reno, United States

Abstract: Natural resource dependency remains a defining feature of many West African economies. While resource extraction contributes significantly to economic growth and export earnings, concerns have emerged regarding its long-term implications for environmental sustainability. This study examines the relationship between natural resource dependency and environmental sustainability across resource-intensive and non-resource-intensive West African economies between 1980 and 2024. Utilizing the Load Capacity Curve framework and panel-corrected standard error estimation techniques, the research evaluates the extent to which natural resource exploitation influences ecological sustainability. The study compares environmental outcomes between countries with differing levels of resource dependency and explores policy measures capable of promoting sustainable development while reducing ecological pressures. Findings are expected to contribute to policy discussions on renewable energy transitions, environmental governance, and sustainable economic diversification.

Keywords: Resource dependency, environmental sustainability, ecological footprint, West Africa, renewable energy

Reframing Innovation Through Ethics: A Conceptual Analysis of Responsibility in Technological Advancement

Authors: Chittarusu Radhika Rani, M.M. Bagali

Institution: Dayananda Sagar University, Bangalore, India

Abstract: Rapid technological advancement has generated unprecedented opportunities for innovation while simultaneously creating new ethical, social, and governance challenges. This paper presents a conceptual analysis of responsible innovation and examines the integration of ethical principles into technological development processes. Drawing from ethical theory, innovation studies, and governance frameworks, the study identifies four key dimensions of responsible innovation: anticipation, inclusivity, reflexivity, and responsiveness. The paper argues that innovation systems must move beyond purely profit-driven objectives and adopt value-sensitive approaches that prioritize social justice, sustainability, transparency, accountability, and human well-being. Particular attention is given to emerging technologies such as artificial intelligence and data-driven systems, where ethical concerns surrounding bias, fairness, privacy, and accountability continue to intensify. The study contributes to ongoing scholarly discussions by proposing an integrative framework that bridges ethics and innovation governance.

Keywords: Responsible innovation, ethics, technological governance, artificial intelligence, sustainability

Non-Violence and Violence in the Theravada Buddhist Tradition

Author: Eshan Imalka Wijerathne

Institution: Giragama Teachers College of Aesthetic Education, Pilimathalawa, Sri Lanka

Abstract: Buddhism is commonly associated with principles of non-violence and compassion. However, historical developments within Theravada Buddhist traditions reveal a more complex relationship between religious doctrine, political authority, and the justification of violence. This study critically examines the evolution of attitudes toward violence within Sri Lankan Theravada Buddhism. Drawing upon canonical texts, historical chronicles, commentaries, and mythological narratives, the research explores how concepts of non-violence were reinterpreted within changing sociopolitical contexts. Particular attention is given to narratives involving the Buddha's encounters with the yakkhas, the origins of the Sinhala polity, and the story of King Duttagāmani. The study argues that these narratives contributed to the emergence of distinctions between morally justified and unjustified forms of violence, thereby allowing

accommodation of political and military realities within religious discourse. The findings highlight the dynamic nature of religious traditions and their interaction with social and political change.

Keywords: Theravada Buddhism, non-violence, religious ethics, Sri Lanka, political history, conflict studies

TRACK F – Interdisciplinary Research & Strategic Innovation (Society, Culture & Communication)

The Influence of Criminal Justice System on Criminal Behaviour Control Among Inmates in Maiduguri Maximum Correctional Centre

Authors: Ojo Babatunde Samson, Asuquo Samuel Princewill

Institutions: Nigerian Defence Academy, Kaduna, Nigeria; Nasarawa State University, Keffi, Nigeria

Abstract: The criminal justice system plays a central role in crime prevention, offender rehabilitation, and the reduction of recidivism. This study investigates the influence of the criminal justice system on criminal behaviour control among inmates within the Maiduguri Maximum Correctional Centre in Borno State, Nigeria. Using a descriptive survey approach, data were collected from correctional personnel and professionals working within the facility. The study examined perceptions regarding the impact of criminal justice procedures, including arrest, prosecution, trial, sentencing, and correctional interventions, on inmate behaviour and reoffending tendencies. Findings indicate that criminal justice processes significantly influence offender behaviour and may affect the likelihood of recidivism after release. The study highlights the importance of fair judicial procedures, effective rehabilitation s, and correctional reforms in promoting positive behavioural outcomes among incarcerated individuals.

Keywords: Criminal justice system, correctional centres, recidivism, rehabilitation, criminal behaviour, Nigeria

The Role of Social Media and Parenting Styles as Determinants of Deviant Behaviours of Adolescents in Secondary Schools within Kaduna Metropolis

Authors: Samuel Princewill Asuquo, Caroline Ifueko Ogbewey

Institutions: Nasarawa State University, Keffi, Nigeria; Nigerian Defence Academy, Kaduna, Nigeria

Abstract: The increasing use of social media among adolescents has raised concerns regarding its influence on behavioural outcomes. This study investigates the combined effects of social media engagement and parenting styles on deviant behaviours among secondary school students in Kaduna Metropolis, Nigeria. Using a descriptive survey design, data were collected from 300 adolescents attending public and private secondary schools. The study examined patterns of social media usage, parenting approaches, and their relationship with behaviours such as truancy, substance abuse, cyberbullying, and academic misconduct. Results revealed a significant positive relationship between excessive social media exposure and deviant behaviour. Parenting style was found to moderate this relationship, with authoritative parenting associated with lower levels of behavioural deviance compared to permissive or neglectful parenting styles. The findings emphasize the importance of parental involvement and responsible digital engagement in promoting positive youth development.

Keywords: Social media, parenting styles, adolescent behaviour, deviance, digital citizenship, secondary education

“TARA FUN?”: Code-Switching as a Pragmatic Strategy for Discursive Intimacy in the Queer Reality Show Sparks Camp

Authors: Alfie C. Aure, Edward Francis Gabor

Institution: Pamantasan ng Cabuyao, Philippines

Abstract: The Philippine sociolinguistic environment is characterized by extensive linguistic fluidity, where code-switching functions as a powerful communicative resource for identity construction, emotional expression, and social interaction. This study examines the use of code-switching as a pragmatic strategy for establishing discursive intimacy among participants in *Sparks Camp*, the Philippines' first reality dating show centered on queer romantic narratives. Drawing upon contemporary scholarship in queer linguistics, discourse analysis, and sociolinguistics, the study investigates how contestants strategically alternate between languages and employ elements of Swardspeak to negotiate vulnerability, affection, and interpersonal connection within mediated digital spaces. The analysis demonstrates that code-

switching extends beyond grammatical alternation and serves as a mechanism for constructing emotional closeness, negotiating identity, and creating safe communicative environments. The study contributes to emerging scholarship on Philippine queer linguistics and mediated communication by highlighting the role of language in shaping modern expressions of intimacy and belonging.

Keywords: Code-switching, sociolinguistics, queer linguistics, discourse analysis, Swardspeak, media communication

Facilitating Pre-Service ESOL Teachers' Understanding of Language Proficiency Pedagogy

Author: Brian Hibbs

Institution: Dalton State College, Georgia, United States

Abstract: Preparing future English for Speakers of Other Languages (ESOL) educators requires a comprehensive understanding of language acquisition processes and language proficiency development. This study explores the impact of a course unit focused on second-language proficiency on pre-service ESOL teachers' beliefs about language learning and teaching. The research examines participants' perceptions before and after exposure to instructional content related to language proficiency frameworks, language acquisition theories, and pedagogical applications. Data collection was guided by instruments designed to assess beliefs regarding language learning and teaching practices. Preliminary findings indicate that focused instruction on language proficiency contributes positively to teacher candidates' understanding of language development and instructional decision-making. The study offers recommendations for teacher education s seeking to strengthen language proficiency pedagogy and improve future ESOL classroom practice.

Keywords: ESOL education, teacher preparation, language proficiency, language acquisition, pedagogy, teacher beliefs

Influence of Employee Engagement, Job Satisfaction and Perceived Organisational Support on Career Commitment Among Non-Academic Employees of the University of Lagos Workforce

Authors: Alebiosu Deborah Tolulope, Akinbode Gabriel Aunde

Institution: University of Lagos, Nigeria

Abstract: Career commitment is an important factor influencing employee retention, motivation, and organisational performance. This study examines the influence of employee engagement, job satisfaction, and perceived organisational support on career commitment among non-academic employees of the University of Lagos. Using a cross-sectional survey design involving 200 participants from six major university departments, the study investigates how workplace experiences shape employees' commitment to their professional careers. The analysis draws upon Social Exchange Theory and Organisational Support Theory to explain the reciprocal relationship between organisational support and employee commitment. Findings indicate that highly engaged and satisfied employees demonstrate stronger career commitment than their less engaged counterparts. Additionally, employees occupying senior positions and reporting higher levels of organisational support exhibited greater career commitment. The study recommends fostering supportive work environments, professional development opportunities, employee recognition programmes, and work-life integration initiatives to strengthen workforce commitment and organisational effectiveness.

Keywords: Employee engagement, job satisfaction, organisational support, career commitment, workforce development, higher education

CONCLUSION

The **GARI International Conference on Science, Technology & Data-Driven Innovation 2026** brings together scholars, researchers, practitioners, and innovators from diverse disciplines and countries to share evidence-based insights, emerging technologies, and interdisciplinary solutions to contemporary global challenges. The accepted abstracts presented in this volume reflect the conference's commitment to fostering innovation, advancing scientific inquiry, encouraging responsible technology development, strengthening education and governance systems, promoting sustainability, and supporting meaningful societal impact through research and collaboration. The Global Association for Research and Innovation (GARI) expresses its sincere appreciation to all authors, reviewers, keynote speakers, session chairs, organizing committee members, and participants whose contributions have made this conference possible. It is our hope that the ideas presented in these proceedings will inspire future research partnerships, innovative solutions, and lasting international collaborations.

End of Proceedings

GARI International Conference on Science, Technology & Data-Driven Innovation 2026

Book of Abstracts – Volume 1 (2026)

Global Association for Research and Innovation (GARI)

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- **Nigeria:** Akwa Ibom State University, Cephas Health Research Initiative, Crifosec Nigeria Limited, Dominican University, Emmanuel Alayande University of Education, Federal School of Surveying, Oyo, Federal Teaching Hospital, Gombe, Federal University of Education, Ondo, Lagos State University, Lagos State University School of Basic and Advanced Studies, Nasarawa State University, Keffi, Nigerian Defence Academy, Kaduna, Rufus Giwa Polytechnic, Owo, University of Benin, University of Calabar, University of Ibadan, University of Lagos
- **Pakistan:** Government College University Faisalabad
- **Philippines:** Pamantasan ng Cabuyao
- **South Africa:** University of KwaZulu-Natal
- **Sri Lanka:** Giragama Teachers College of Aesthetic Education
- **United States of America:** Dalton State College, Georgia; University of Nevada, Reno

Institutional Representation Summary

The conference attracted contributions from institutions across:

- Africa
- Asia
- Europe
- North America

This broad institutional representation reflects the international and interdisciplinary nature of the GARI International Conference on Science, Technology & Data-Driven Innovation 2026 and demonstrates GARI's commitment to fostering global scholarly collaboration and knowledge exchange.

CONFERENCE AWARDS AND RECOGNITION

The Global Association for Research and Innovation (GARI) recognizes that scholarly excellence extends beyond the generation of knowledge to include innovation, collaboration, mentorship, professional service, and societal impact. As part of its commitment to fostering a vibrant international research community, the GARI International Conference on Science, Technology & Data-Driven Innovation 2026 established a framework for recognizing outstanding contributions presented during the conference.

Conference Awards

- **Best Research Presentation Award:** Presented to the author(s) whose presentation demonstrates exceptional scholarly quality, methodological rigor, originality, clarity of communication, and contribution to knowledge within their field of study.
- **Emerging Scholar Award:** Presented to an early-career researcher or student whose work demonstrates significant promise, innovation, academic excellence, and potential for future scholarly impact.
- **Innovation & Applied Impact Award:** Presented to the research project that demonstrates outstanding practical application, innovation, technological advancement, or potential for real-world implementation and societal benefit.
- **Interdisciplinary Research Excellence Award:** Presented to research that successfully integrates concepts, methods, or perspectives from multiple disciplines to address complex challenges and generate meaningful insights.
- **Outstanding Mentored Research Award:** Presented to a research project that reflects exemplary collaboration between mentors and emerging researchers, demonstrating the value of mentorship in advancing research excellence.

Special Recognitions

- **Outstanding Mentor Recognition:** Presented to individuals who have demonstrated exceptional commitment to mentoring, capacity building, professional development, and scholarly support within the research community.
- **Distinguished Session Chair Recognition:** Presented to Session Chairs and Co-Chairs in recognition of their leadership, professionalism, and service in facilitating high-quality scholarly discussions and maintaining the academic standards of the conference.

Selection Process

Award recipients are selected based on established evaluation criteria that may include:

- Originality and innovation
- Scholarly contribution
- Methodological rigor

- Clarity of presentation
- Practical significance
- Interdisciplinary relevance
- Potential societal impact
- Quality of audience engagement

The Awards Committee is responsible for reviewing evaluations and recommending award recipients based on conference presentation performance and overall scholarly merit.

The Global Association for Research and Innovation congratulates all presenters, authors, mentors, reviewers, session leaders, and participants whose contributions have made this conference a success.

ACKNOWLEDGEMENTS

The Global Association for Research and Innovation (GARI) gratefully acknowledges the many individuals and institutions whose dedication, expertise, and support contributed to the successful organisation of the GARI International Conference on Science, Technology & Data-Driven Innovation 2026.

We extend our sincere appreciation to all authors and presenters for sharing their research, innovations, and professional insights. Their contributions form the foundation of this conference and advance the global exchange of knowledge across disciplines.

We are especially grateful to our Distinguished Keynote Speaker, session chairs, co-chairs, reviewers, organizing committee members, and volunteers whose commitment ensured the academic quality and smooth execution of the conference.

Special appreciation is extended to:

Conference Leadership

- Dr. Jimoh Braimoh, Conference Chair
- Dr. Marta Galindo, Conference Co-Chair
- Dare E. Ehigie, Conference Coordinator
- Prof. Kingsley Chiwuike Ukaoha, Programme Chair
- Engr. Ashraf Syed, Technical Programme Chair
- Ms. Oluwatomilola Agbaakin, Conference Secretary
- Dr. Samuel U. Felix, Awards Committee Chair
- Dr. Horeb Anthony, Board Oversight

- Ms. Sam Laliberte, Conference Moderator

We also acknowledge the institutions, organisations, and professional networks represented by our participants from Africa, Asia, Europe, and North America. Their engagement demonstrates the power of international collaboration in advancing research, innovation, education, technology, sustainability, and societal development. Finally, we thank every attendee, supporter, and partner who contributed to the success of this event. Your participation strengthens GARI's mission to promote research excellence, innovation, mentorship, scholarly communication, and global collaboration.

We look forward to continuing these partnerships and building new opportunities for knowledge exchange and impactful research in the years ahead.

ABOUT THE GLOBAL ASSOCIATION FOR RESEARCH AND INNOVATION (GARI)

The Global Association for Research and Innovation (GARI) is an international scholarly and professional organisation dedicated to advancing research excellence, innovation, mentorship, interdisciplinary collaboration, and global knowledge exchange. Founded on the belief that research should extend beyond publication to create meaningful societal impact, GARI provides a platform through which researchers, academics, professionals, innovators, policymakers, and students can collaborate, share knowledge, and develop solutions to contemporary challenges.

Through conferences, distinguished lectures, mentorship programmes, fellowships, publications, awards, and collaborative initiatives, GARI supports the development and dissemination of evidence-based knowledge across multiple disciplines.

Strategic Areas of Focus

- Research Excellence
- Innovation and Technology
- Data-Driven Decision Making
- Education and Capacity Building
- Sustainability and Global Development
- Health and Public Service
- Policy and Governance
- Interdisciplinary Collaboration

Major Programmes

International Conferences

GARI organizes international conferences that provide platforms for presenting research findings, exchanging ideas, and fostering collaboration among scholars and practitioners worldwide.

Distinguished Lecture Series

The Distinguished Lecture Series brings together leading experts and thought leaders to discuss emerging issues, innovative solutions, and future directions in research and professional practice.

Research Mentorship Programme (RMPP)

The Research Mentorship and Publication Programme supports students, early-career researchers, and professionals through mentorship, collaborative research opportunities, publication guidance, and professional development.

Publications

GARI promotes scholarly communication through conference proceedings, journals, edited volumes, and other academic publication initiatives that facilitate global knowledge dissemination.

Awards and Recognition

GARI recognizes excellence in research, innovation, leadership, mentorship, and professional service through its awards and recognition programmes.

Vision

To be a globally recognized leader in advancing research, innovation, scholarly excellence, and collaborative solutions that contribute to sustainable development and societal progress.

Mission

To foster research, innovation, mentorship, scholarly communication, and interdisciplinary collaboration through programmes, partnerships, publications, and professional engagement that create meaningful impact across communities, institutions, industries, and nations.

Connect With [GARI](#)

Website: www.gariwenjibra.org

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Global Association for Research and Innovation (GARI)

Advancing Knowledge. Inspiring Innovation. Creating Impact.