47th WCASET BANGKOK · World Conference on Applied Science Engineering and Technology ·
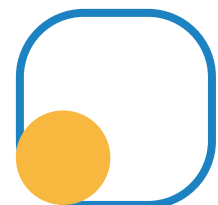
2024

WCASET 2024

47th World Conference on Applied Science, Engineering & Technology

27th-28th December 2024
Bangkok, Thailand

Organized by

IFERP® Academy
Explore Your Research Journey...

47th World Conference on Applied Science, Engineering & Technology (WCASET-2024), Bangkok, Thailand

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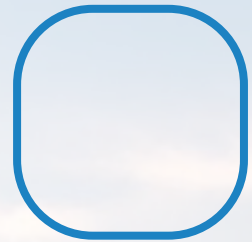
Conference Venue:

**Grand Mercure Bangkok Atrium
Huay Kwang, Bangkok, Thailand**

Preface

We are delighted to extend a warm welcome to all participants attending "47th World Conference on Applied Science, Engineering & Technology (WCASET 2024)" organized by IFERP Academy-Thailand Society on December 27th-28th, 2024 at Grand Mercure Bangkok Atrium, Bangkok, Thailand. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in the field of Applied Science, Engineering & Technology. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for WCASET 2024 contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of Applied Science, Engineering & Technology. All submitted papers were subject to rigorous peer reviewing by 2-4 expert referees, and the papers included in these proceedings have been selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results in Applied Science, Engineering & Technology but also serve as a valuable summary and reference for further research in this field.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the many professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work. We also extend our appreciation to the external reviewers for providing additional support in the review process and to the authors for contributing their research results to the WCASET 2024.

Since July 2024, the Organizing Committees have received more than 150+ manuscript papers, covering all aspects of Applied Science, Engineering & Technology. After review, approximately 40+ papers were selected for inclusion in the proceedings of WCASET 2024. We would like to thank all participants at the conference for their significant contribution to its success.

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

About
WCASET-2024

The 47th World Conference on Applied Science, Engineering & Technology (WCASET-2024) provides a comprehensive experience for participants eager to immerse themselves in cutting-edge research, interdisciplinary collaboration, and the latest advancements in applied science, engineering, and technology. Attendees will engage in multidisciplinary exploration, benefiting from vibrant discussions that transcend traditional boundaries. Networking opportunities abound, connecting participants with leading global professionals and researchers, fostering collaborations for future partnerships and academic exchanges. The conference ensures participants stay current with cutting-edge research, presenting groundbreaking findings and innovations in applied science and technology. Attendees will enhance their knowledge through diverse topics covered in keynote speeches, paper presentations, and panel discussions, gaining valuable insights into current trends and challenges. With a global perspective, WCASET-2024 attracts a diverse audience, broadening attendees' worldview and offering insights into international best practices. Moreover, the conference provides a platform for researchers to contribute to the global knowledge base, with accepted papers having the opportunity for publication in peer-reviewed journals, facilitating wider dissemination of their work to a global audience.

Scope of the Conference

WCASET-2024 encompasses a broad scope, reflecting the dynamic nature of applied science, engineering, and technology. The conference covers, but is not limited to, the following areas:

1. Applied Science: Explore advancements in various branches of applied science, including physics, chemistry, biology, and environmental science. Understand how scientific principles are applied to real-world problems and contribute to our understanding of the natural world.

2. Engineering: Delve into the latest developments in engineering disciplines such as civil, mechanical, electrical, and chemical engineering. Learn about innovations in technology, infrastructure, and sustainable engineering practices.

3. Technology: Stay informed about emerging technologies, digital advancements, and their applications across industries. Topics may include artificial intelligence, data science, cybersecurity, and information technology.

4. Education: Recognizing the pivotal role of education, WCASET-2024 dedicates special attention to educational research and pedagogical advancements. Attendees can explore innovative teaching methodologies, technological integration, and strategies for enhancing the learning experience.

Objective of the Conference

WCASET-2024 is guided by a set of overarching objectives that define its mission and activities:

1. Knowledge Exchange: Create a dynamic platform for researchers, academicians, and professionals to exchange knowledge, share insights, and foster a culture of continuous learning. The conference serves as a crucible for intellectual exchange and collaboration.

2. Interdisciplinary Dialogue: Facilitate multidisciplinary discussions that transcend traditional boundaries. By encouraging dialogue between different disciplines, WCASET-2024 aims to generate holistic solutions to contemporary challenges that require collaborative efforts.

3. Global Collaboration: Promote collaboration among professionals, researchers, and institutions on a global scale. WCASET-2024 seeks to establish synergies that can lead to collaborative research projects, partnerships, and academic exchanges, contributing to a better-connected global research community.

4. Advancing Knowledge: Contribute to the advancement of knowledge in applied science, engineering, and technology. The conference provides a platform for researchers to present their latest work, disseminate research findings, and contribute to the collective knowledge pool.

About
IFERP Academy

IFERP Academy advances engineering, science, and technology on a global scale. Their mission is to bridge the gap between the scientific community and the ever-evolving industrial landscape through the power of digital innovation. Their reach is extensive, spanning across Europe, the Middle East, Asia, and beyond. From Iraq and Malaysia to Australia, they empower researchers, scientists, students, and professionals with a suite of valuable resources like,

- Publications opportunities in renowned databases like Web of Science and Scopus.
- Networking opportunities to forge meaningful connections with peers from diverse backgrounds
- Offering research support, aid and guidance to propel projects forward.

At IFERP. Industry-Institute Interaction and Youth Empowerment are at the heart of their initiatives. They actively promote:

- Collaboration between academia and industry
- Empowerment of the next generation

IFERP is a gateway to a vibrant global network of scientific minds to pave the way for a brighter future.

Mission

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

Vision

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

Message from
IFERP's Director

Mr. A. Siddth Kumar Chhajer

Founder & Managing Director,
IFERP Academy, Technoarete Group,
India

On behalf of IFERP & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers. The goal of the WCASET 2024 is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in the field of Applied Science, Engineering & Technology.

This conference creates solutions in different ways and to share innovative ideas in the field of Applied Science, Engineering & Technology. WCASET 2024 provides a world class stage to the Researchers, Professionals, Scientists, Academicians and Students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

WCASET 2024 will explore the new horizons of innovations from distinguished Researchers, Scientists and Eminent Authors in academia and industry working for the advancements in Science and Engineering from all over the world.

WCASET 2024 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of Applied Science, Engineering & Technology.

Message from
IFERP's Director

Mr. Rudra Bhanu Satpathy

Founder & CEO,
IFERP Academy, Technoarete Group,
India

IFERP is hosting the 47th World Conference on Applied Science, Engineering & Technology (WCASET 2024) this year in month of December, 2024. The main objective of WCASET 2024 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions.

The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader. I express my hearty gratitude to all my Colleagues, Staffs, Professors, Reviewers and Members of Organizing Committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.

About
Keynote Speaker

Dr. Aswath M U

Principal
Bangalore Institute of Technology
India

Dr. Aswath M U is a distinguished figure in the field of Civil Engineering and academia, currently serving as Principal of Bangalore Institute of Technology (BIT), Bangalore-560004. With a tenure as President of the Association of Consulting Engineers (India) from 2019 to 2021 and significant academic leadership roles including Academic Senate Member and Chairman of the Board of Studies at Visvesvaraya Technological University (Jul 2016 – Jun 2019), Dr. Aswath M U has exemplified expertise and dedication. Previously, he held the position of Professor & Head of the Department of Civil Engineering at BIT (Nov 2014 - May 2017) and served as Secretary General of ACCE(I) from Jun 2009 to Jul 2011. Her career spans over 25 years as a structural consultant, contributing extensively through publications in national and international journals, authoring notable books like "Alternatives to River Sand" and "Reference Manual for Field Engineers on Building Construction," and organizing numerous workshops and seminars. Recognitions include the CIDC Vishwakarma Award 2014 and vocational excellence accolades. Actively engaged in community service and professional organizations, Dr. Aswath M U continues to impact the field through leadership, innovation, and educational initiatives.

About
Keynote Speaker

Dr. Zahriladha Zakaria

Centre for Telecommunication Research & Innovation (CeTRI)
Faculty of Electronic and Computer Technology and
Engineering, Universiti Teknikal Malaysia Melaka (UTeM),
Malaysia

Zahriladha ZAKARIA was born in Johor, Malaysia. He received the B. Eng. and M. Eng. in Electrical and Electronic Engineering from the Universiti Teknologi Malaysia in 1998 and 2004 respectively, and the PhD degree in Electrical & Electronic Engineering from the Institute of Microwaves and Photonics (IMP), University of Leeds, United Kingdom in 2010. From 1998 to 2002, he was with STMicroelectronics, Malaysia where he worked as Product Engineer. He is currently a Professor at Microwave Research Group (MRG), Faculty of Electronic and Computer Technology & Engineering, University Teknikal Malaysia Melaka (UTeM), where he teaches Microwave Engineering, Antenna and Propagation, Electronic System, Communication Principles, Wireless Communications and Signal Processing. His research interests include variety of microwave devices development such as planar and non-planar microwave filters, resonators, amplifiers and antennas. He also investigates energy harvesting, sensor and data communications for interdisciplinary applications. He has published more than 400 scientific papers in journals, proceedings and book-chapters. He holds 8 intellectual property rights and he has won several awards including gold medal during several research and innovation exhibitions at the national and international level, such as the UTeMEX 2012, 2013 & 2015, Malaysia Technology Expo (MTE 2012-2014 and 2016), ITEX 2016 & 2017, International Trade Fair Ideas Inventions New Products (iENA 2012) in Nuremberg, Germany, Seoul International Invention Fair (SiiF 2013, 2016, 2017 & 2019) in Seoul, Korea. Dr. Zakaria is an active reviewer for prominent journals such as IEEE Transactions on Microwave Theory and Techniques (MTT), IEEE Sensor, IEEE Access, IEEE Microwave and Wireless Components Letters (MWCL), IET Microwave, Antennas and Propagation and etc. He is also the recipient of Top Research Scientist Malaysia (TRSM) 2021.

About
Keynote Speaker

Dr. Muhamad Firdaus Syahmi Bin Sam-On

Senior Lecturer, Department of Food Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, Malaysia

Muhamad Firdaus Syahmi bin Sam-On is a dedicated and accomplished Senior Lecturer specializing in Microbiology, with a profound passion for research and academic excellence. He obtained his Bachelor of Science in Microbiology in 2020 and subsequently finished a PhD in the same field from Universiti Putra Malaysia in 2023. Additionally, his expertise in farming and biotechnology has equipped him with valuable skills in pests and pathogens management, laboratory protocols, and problem-solving. Throughout his academic journey, Muhamad Firdaus Syahmi has exhibited a keen interest in exploring microbial pathogens and their potential applications in various fields, particularly in aquaculture and food safety. His doctoral research focused on evaluating the efficacy of Bacillus spp. as probiotics against pathogens causing Vibriosis and Aeromonosis, which culminated in several high- impact publications in esteemed journals like Microbial Pathogenesis and Food Bioscience. Serving as a Senior Lecturer at Universiti Kebangsaan Malaysia, Muhamad Firdaus Syahmi continues to improve his passion for teaching and research. His interdisciplinary approach and innovative methodologies have earned him recognition in the field of microbiology, and his target is to make a lasting impact on scientific knowledge and understanding. He is fluent in both Malay and English languages and always eager to learn more from his colleagues and peers in the industry. Please feel free to contact Muhamad Firdaus Syahmi Sam-on on this platform for any comments or questions related to microbiology and biotechnology.

About
Keynote Speaker

Dr. Prakash Subramaniam

Dean
Sathyabama Institute of Science & Technology
India

Dr. S.Prakash is the Former Dean of the School of Mechanical Engineering at Sathyabama University, with over 25 years of teaching experience and expertise in academic leadership. He has played a pivotal role in securing NAAC A++, NBA, and ABET accreditations, authored over 100 publications, holds 27 design patents, and has facilitated successful technology transfers to industry. He has also secured research grants totaling INR 3 crore for projects like MODROB and Digital Twin Technology. A dedicated mentor and researcher, Dr. S.Prakash bridges academia and industry through impactful collaborations and innovative academic programs.

About
Keynote Speaker

Dr. Gurmeet Singh

Vice Principal, Head to the P.G. Department of Mathematics
GSSDGS Khalsa College (Autonomous),
Patiala , Punjab, India

Dr. Gurmeet Singh, with 31 years of teaching experience, is an esteemed academic in the field of Mathematics. He completed his post-graduation and M.Phil. from Punjab University, Chandigarh, and earned his doctorate in Geometric Function Theory from Maharishi Markandeshwar University, Mullana. Dr. Singh has authored numerous books and over 100 research papers, and delivered keynote addresses at prestigious institutions like Oxford University and Imperial College, London. He has received multiple awards, including the Pythagoras Research Award, Aryabhatta Global Mathematician Award, and Lifetime Achievement Award by NFED. He currently serves as Vice Principal and Head of the P.G. Department of Mathematics at GSSDGS Khalsa College, Patiala.

IFERP Academy
Explore Your Research Journey...

About
Keynote Speaker

Mr. V. Venkata Ramana

Vice-Chairman, Telangana State Council of Higher Education (TSCHE) &
Vice-Chancellor, Rajiv Gandhi University of Knowledge Technologies, Basar &
Professor, School of Management Studies, University of Hyderabad, Telangana, India

Prof. V. Venkata Ramana is a prominent academic and administrator with over 35 years of experience spanning academia, industry, and public service. He holds an MBA and a Doctorate in Management, with advanced training from Sweden and the University of Texas. He served as Dean at the University of Hyderabad for over seven years and held board-level positions at the State Bank of Hyderabad and India Infrastructure Finance Company. He is a pioneer in innovation and entrepreneurship, founding the Technology Business Incubator at the University of Hyderabad. His research interests include corporate governance, strategy, and marketing, and he has authored 10 books and over 40 scholarly articles. Prof. Ramana has been a Visiting Professor in the USA, Thailand, and Poland and has delivered lectures worldwide. He has received several honors, including the AICTE Career Award, the CII Harithaharam Award, and the COP 28 UAE Green University Award for promoting sustainable education. He has represented India globally, including accompanying the President of India to China and participating in academic programs at the University of Pennsylvania and other prestigious institutions. Currently, he is the Vice-Chairman of TSCHE and Vice-Chancellor (I/c) of RGUKT, Basar, where he leads initiatives in sustainable education, innovation, and policy planning.

About
Keynote Speaker

Dr. Mrutunjaya Bhuyan
Ramanujan Faculty (Scientist D)
Institute of Physics, Bhubaneswar,
India

Dr. Mrutunjaya Bhuyan is a renowned nuclear astrophysicist, celebrated for his groundbreaking research in atomic structure, nuclear reactions, scattering, and nuclear astrophysics. His work has significantly advanced our understanding of key phenomena such as the superheavy island, the island of inversion, nuclear halos and skins, the equation of state for highly asymmetric dense matter, neutron star observables, neutron star mergers, and gravitational waves. Furthermore, his research extends to the application of nuclear fission, particularly in relation to neutron multiplicity and astrophysical reactions. Dr. Bhuyan is widely recognized for his contributions, both internationally and nationally. Notably, he was honored with the Young Scientist Award by the Odisha Physical Society (OPS) in 2018. In 2022, Stanford University ranked him among the World's Top 2% Scientists in his field based on career-long citation impact, according to the Elsevier database. Throughout his academic journey, he has received numerous prestigious fellowships, including the FAPESP Fellowship from Brazil (2016), the CAS Fellowship from China (2014), and the Department of Atomic Energy Fellowship from India (2013). With a prolific academic career, Dr. Bhuyan has authored one book, contributed two book chapters, and published over 100 research papers in SCI/Scopus journals. He has also presented more than 90 conference proceedings and delivered over 50 invited talks worldwide. He has been the principal investigator for two national and four international research projects. Under his supervision, four PhD students have been awarded their degrees, and six more are currently pursuing their doctoral research. Additionally, he has mentored 12 master's students and supervised 14 internships. Dr. Bhuyan has also traveled to over 12 countries to further his academic exploration and collaboration.He serves as an editor for two international journals and regularly reviews for more than 25 academic journals. His enduring contribution to the scientific community is reflected in his commitment to research excellence, mentorship, and academic service.

About
Keynote Speaker

Dr. Sipnarong Kanchanawongpaisan

Deputy Director
The Institute of Multidisciplinary Postdoctoral and Franchise
Program (IPF), Thailand

Dr. Sipnarong Kanchanawongpaisan is a Deputy Director of The Institute of Multidisciplinary Postdoctoral and Franchise Program (IPF) and lecturer at the Faculty of Engineering and Technology, Shinawatra University. He has dual Ph.D. degrees in Business Administration and Political Science, a Master of Business Administration, and bachelor's degrees in Law, a Bachelor of Economics, and a Bachelor of Arts. With expertise in Business Administration, Political Science, and Engineering Management, his research focuses on sustainability, digital transformation, CSR, and Structural Equation Modeling (SEM). Dr. Sipnarong Kanchanawongpaisan has published seven SCOPUS-indexed papers, four in TCI Tier 1 and two in TCI 2 in 2024, securing a 700,000 THB research grant. As a keynote speaker, moderator, and conference chair at various international forums, Dr. Sipnarong leads innovative projects such as "The Strategic Toward Digital University," "Sustainability," and "Green University" and has initiated the development of waste management processes. His teaching expertise spans advanced statistics, business research design, and sustainable development, significantly contributing to academia and research.

About
Keynote Speaker

Dr. A. K. Mahbubul Hye

Chairperson, Logistic and Supply Chain,
Faculty of Management, Shinawatra University,
Thailand

Dr. Sipnarong Kanchanawongpaisan is a Deputy Director of The Institute of Multidisciplinary Postdoctoral and Franchise Program (IPF) and lecturer at the Faculty of Engineering and Technology, Shinawatra University. He has dual Ph.D. degrees in Business Administration and Political Science, a Master of Business Administration, and bachelor's degrees in Law, a Bachelor of Economics, and a Bachelor of Arts. With expertise in Business Administration, Political Science, and Engineering Management, his research focuses on sustainability, digital transformation, CSR, and Structural Equation Modeling (SEM). Dr. Sipnarong Kanchanawongpaisan has published seven SCOPUS-indexed papers, four in TCI Tier 1 and two in TCI 2 in 2024, securing a 700,000 THB research grant. As a keynote speaker, moderator, and conference chair at various international forums, Dr. Sipnarong leads innovative projects such as "The Strategic Toward Digital University," "Sustainability," and "Green University" and has initiated the development of waste management processes. His teaching expertise spans advanced statistics, business research design, and sustainable development, significantly contributing to academia and research.

IFERP Academy
Explore Your Research Journey...

About
Session Speaker

Dr. Froilan Mobo
Assistant Director
Philippine Merchant Marine Academy
Philippines

Froilan Mobo is a Doctor of Public Administration graduate from the Urdaneta City University Class of 2016 and a graduate of the 2nd Doctorate Degree (Ph.D.) in Development Education program at the Central Luzon State University, Nueva Ecija, Philippines, Class of 2022. On March 11, 2024, Dr. Mobo was accredited and reclassified by the Commission on Higher Education (CHED) to the position of Professor II in the Philippine Merchant Marine Academy (PMMA), and this allowed him to work with different international research institutions, such as the Director and Research Consultant of the IKSAD Research Institute, Turkey. At present, he is in the process of finishing his 3rd master's degree, leading to social studies education at Bicol University. Recently, Dr. Mobo passed Batch 3—Certified Research Professional— and ranked in the top 5 in the National Examination and also passed the Certified Human Resource Associate (CHRA). He was appointed Editor-in-Chief of the International Journal of Multidisciplinary: Applied Business and Education Research, Malang, Indonesia, and appointed as a technical research evaluator by the Department of Science and Technology and Book Chapter Editor in IGI Global Publisher based in USA. He has published 109 research articles with 178 citations indexed in the Web of Science, Scopus, and ASEAN Citation Index.

About
Session Speaker

Dr. Kayatri Govindaraju

Head of Department
Department of Pharmaceutical Life Sciences
Universiti Malaya, Malaysia

Cardiovascular pharmacology focusing on the study of signal transduction pathways that mediate vasoconstriction and vasorelaxation. Techniques: Tissue/organ bath experiments, calcium assays, western blotting, toxicity assay using Caenorhabditis Elegans and metabolomics.

About
Session Speaker

Dr. Yogesh Golhar

Assistant Professor,
St. Vincent Pallotti College of Engineering & Technology
Nagpur University, India

Dr. Yogesh Golhar is an Assistant Professor at St. Vincent Pallotti College of Engineering and Technology, Nagpur, where he also serves as a member of the Autonomous Exam Cell. He specializes in image processing, video processing, and data analytics. Dr. Golhar has delivered guest lectures and served as a keynote speaker at numerous workshops and conferences. His achievements include 10+ SCOPOUS papers, over 33+ publications in international conferences and journals, 5+ book chapters, and 4 patents (2 of which have been granted). He earned his doctorate in 2021. Passionate about technology and continuous learning, Dr. Golhar focuses on blending new and old concepts to solve complex problems.

About
Session Speaker

Ms. Daisy Mae R. Bongtiwon

Professor,
Eulogio Amang Rodriguez Institute of Science and Technology
De la salle University, Manila, Philippines

Daisy Mae Bongtiwon is a distinguished Cum Laude graduate of BS Physics for Teachers from Philippine Normal University in 1999, showcasing her commitment to academic excellence. She was a recipient of the DOST-SEI scholarship from 1995 to 1999, highlighting her dedication to advancing scientific knowledge. With an impressive academic journey, she earned her MAT–Math from Philippine Normal University in 2002. Currently pursuing an MS in Physics at DLSU-Manila, Daisy Mae serves as a STEM Educational Manager and has contributed significantly to the field as an author of various science, physics, chemistry, and calculus books.

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# About
Session Speaker
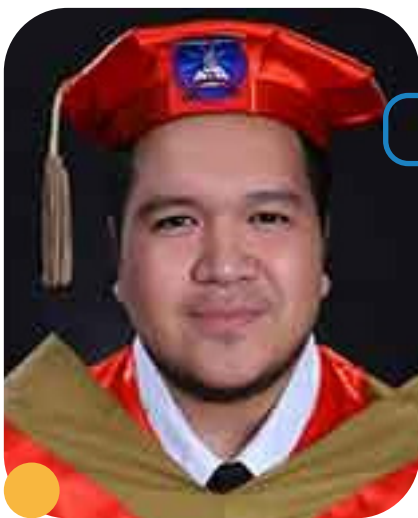
Dr. Johannes V. Gloria

Assistant Professor,
North Eastern Mindanao State University
Philippines

Johannes V. Gloria, Ph.D. is a seasoned professional with a robust academic background and extensive experience in both academia and industry. He holds a Ph.D. in Management from the University of Mindanao, an MBA from St. Theresa College, and multiple undergraduate degrees, including a BS in Business Management from Cebu Institute of Technology University, a BS in International Studies with a major in Business Economics from Asian College of Technology, and a BS in Secondary Education with a major in Social Sciences from North Eastern Mindanao State University. Dr. Gloria has a distinguished career in the business process outsourcing (BPO) industry, where he served as a Senior Manager for leading companies in Cebu City, Philippines. His expertise spans operations management, project management, and customer relations, honed through years of experience in high-pressure environments. In addition to his work in the BPO sector, Dr. Gloria has made significant contributions as a freelancer, holding positions such as Operations Manager and Senior Project Manager for a real estate investment company in California, USA. His work in the real estate industry has involved managing complex projects, optimizing operations, and ensuring the successful execution of investment strategies. Dr. Gloria's diverse academic credentials and professional experiences make him a highly versatile and knowledgeable expert in both the academic and business realms. His ongoing commitment to excellence is reflected in his continuous pursuit of opportunities to enhance his skills and contribute to the fields of management, education, and real estate.

About
Session Speaker
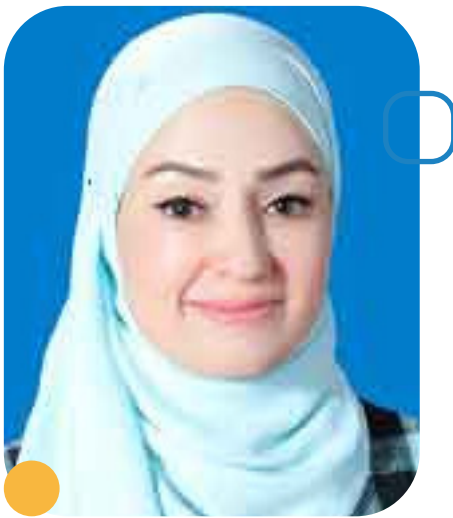
Dr. Suha Khanfar

Doctor of business administration
International American University, Jordan

Creative professional and collaborator with 15+ years of experience, including 10+ years as an executive manager and lead. Deep expertise in manufacturing processes, materials, and licensing. Skilled in managing both large and small teams, developing budget-sensitive products through innovation and storytelling. Committed to being a global leader in business management, driving sustainable growth through cutting-edge technologies, ethical leadership, and empowering communities.

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About
Session Speaker

Dr. Dowroong Watcharinrat

Associate Professor,
Faculty of Liberal Arts
Shinawatra University, Thailand

Assoc. Prof. Dr. Dowroong Watcharinrat was born in 1961 at Nakornratchasima, Thailand. He obtained his B.S.in Agricultural Mechanization from Rajamangala University of Technology, Thailand, M.S. in Technical Education from King Mongkut's University of Technology North Bangkok, and Ph.D. in Technology Management from Technological University of the Philippines. He had got 5 Certificates in Agricultural Engineering areas from China, 4 Certificates in Agricultural Mechanization areas from Japan, 2 Certificates in Higher Education Teaching from Finland and a Certification in Teaching& Research from VOCTECH, Brunei.He had many International Publications Research in the areas of Agricultural Mechanization, Agricultural and Education.

About
Session Speaker

Dr. Anu Sayal

Faculty of Business and Law
School of Accounting and Finance,
Taylor's University, Malaysia

Dr. Anu Sayal is currently working as Senior Lecturer in Mathematics/ Statistics with Taylor's Business School, Taylor's University, Malaysia (ranked among top 50 in Asia and 251 globally). She is a accredited trainer by HRD corp. Malaysia. She has 17+ years of teaching and research experience. She has done Bachelors in Non-medical from Guru Nanak Dev University, Amritsar. Her Post Graduation was in Mathematics from Guru Nanak Dev University, Amritsar. She has done her PhD in Mathematics from Uttarakhand Technical University Dehradun. She received the "Young Scientist Award in Mathematics: Statistics and Computer Science from Uttarakhand Council for Science and Technology, Dehradun, Uttarakhand, in February 2020 at UCOST, Dehradun. She has also received Teacher of the Year 2020 Award in September 2020 from Divya Himgiri in association with Uttarakhand Council for Science & Technology, Government of Uttarakhand, Commission for Scientific & Technical Terminology, MHRD, Govt. of India, New Delhi. She received Guruwarya samman 2021 award from Harvest educational transformational solutions (HETS). She also received Best woman scientist award from Novel research academy in December 2021. She was also awarded as the Best teacher in January 2022 by Harvest educational transformational solutions. She has authored numerous research papers in reputed and prestigious journal (including Scopus & SCI), presented papers in many national and international conferences. She is serving as a reviewer and editorial board member for various international journals (SCI & Scopus indexed). She has also organised various workshops and FDP's. Her research interest includes Fuzzy mathematics, Statistics, Numerical techniques, inventory and supply chain management. Dr. Anu Sayal has been the coordinator of the Uttaranchal University centre for innovation, incubation and Entrepreneurship from 2018 to 2022. During this period, she has greatly contributed for organising various events related to entrepreneurship with eminent bodies like FICCI FLO Uttarakhand, Registrar of companies etc. These events facilitated in providing an insight to the young budding entrepreneurs for taking their first step towards entrepreneurship. During her tenure as a coordinator of the incubation centre she motivated students for startups thereby providing them the complete information related to various procedures involved in starting their own ventures. Under her mentorship many students registered for their companies which turned out to be successful. She has also delivered lectures related to incubation and entrepreneurship in seminars and workshops. She has also worked as a coordinator for PCL (project centric learning) at JAIN (deemed to be University) incubator and provided the right direction and the relevant information to the students for starting their own ventures.

About
Session Speaker

Dr. Chitra Kiran. N

Department of ECE,
Alliance College of Engineering,
Alliance University, Bengaluru, India

Dr.Chitra Kiran.N working as a Professor in the Department of Electronics and Communication Engineering Alliance University. She has about 3 decades of teaching experience. She received her Doctorate in Electronics and Communication Engineering in the area wireless communication from Bangalore University in 2014. She has published 25 research papers in international journals and 30 research papers in various international conferences. She is the author of several books and book chapters, blog, newsletter and patents. Her area of research include Wireless Communication, Digital Communication, Internet of Things, Mobile Computing, M-Commerce and E-Commerce. She is an active member of IEEE, IET and ISTE. She has reviewed many international journals. She has received awards for her research contributions. She was the session chair and keynote speaker in various international conferences in India and Abroad. She Has worked in various capacities. She was the Professor and Head in various Engineering Colleges and University. She was the Member Board of Examiners and Member Board of Studies Bangalore University, She was nominated as a Member for Local Enquiry Committee from VTU Belagavi.

About
Session Chairs

Ms. Daisy Mae Bongtiwon

Professor, Faculty of Physics and
Mathematics, Eulogio Amang Rodriguez
Institute of Science and Technology
Manila, Philippines

Ms. Ma. Lourdes H. Gomez

Professor, Faculty of Physics and
Mathematics, Eulogio Amang Rodriguez
Institute of Science and Technology
Manila, Philippines

Dr. B. Purnachandra Rao

Sr. Solutions Architect
HCL Technologies
Bangalore, India

Dr. Manikandan T

Professor, Department of CSBS,
Rajalakshmi Engineering College,
Rajalakshmi Nagar, Thandalam,
Chennai, India

Dr. S. Ramesh

Assistant Professor (SS),
Department of Mechatronics
Engineering, Rajalakshmi Engineering
College, Thandalam, Chennai, India

**Dr. Sipnarong
Kanchanawongpaisan**

Deputy Director, The Institute of
Multidisciplinary Postdoctoral and
Franchise Program (IPF), Thailand

About
Committee Members

Organizing Secretary

Mr. Chonlatee Photong, Ph.D.
CEO, Graduate School, Mahasarakham University Kham Riang, Thailand

Scientific Committee

Dr. Hasanuzzaman Tushar
Associate Professor, Department of Business Adminstration, International University of Business Agriculture and Technology Dhaka, Bangladesh

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Abstract's
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Optimizing Job Search: A Practical Guide to Using Personality Tests for Better Career Alignment

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Abstract:

The job search process can be a complex and challenging journey, particularly for individuals in Indonesia who seek opportunities that align with their skills, aspirations, and personality traits. This study explores the role of personality assessments in enhancing the job search process by providing a structured approach to career alignment. Using a quantitative research design, data were collected from 78 participants actively seeking new employment or career advancement opportunities. A structured questionnaire consisting of 21 questions was distributed through random sampling to capture diverse perspectives on the use of personality assessments in job searching. The survey results revealed key challenges faced by job seekers, such as difficulty finding job openings that match their skills (16.67%), aligning career goals with personal strengths (12.18%), preparing for interviews (14.10%), and identifying roles that fit their personality (9.62%). These findings highlight the need for more personalized and targeted job search strategies. Personality assessments, enhanced by technological advancements, are valuable tools for addressing these challenges. By helping job seekers gain deeper insights into their strengths, weaknesses, and preferences, these tools facilitate better job-person fit, improve job satisfaction, and streamline career decision-making. The study demonstrates the potential benefits of integrating personality assessments into the job search process, aiming to create a more efficient, effective, and personalized approach to career development. By offering a structured way to align personal characteristics with job opportunities, personality assessments can play a key role in improving the overall job search experience, reducing job mismatch, and helping individuals make more informed career choices and decisions. Ultimately, this research aims to contribute to a better understanding of how personality assessments can optimize career pathways and improve the efficiency of the job search process.

Keywords: Career Development, Challenges, Job Search, Personality Traits, Technology

Factors Influencing Young Workers Towards Digital Labour Platforms

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Abstract:

Technological advancement has transformed the lives of people in every aspect. The disruption can be reflected in the employment relationship between employer and employee in digital labour platform. Digital labour platform has existed before the COVID-19 pandemic and continues to evolve in the world of work. Due to the flexibility offered in digital labour platform, it has attracted workers to work in digital labour platform, predominantly, young workers. However, the lack of labour rights and social security protection for workers in digital labour platform has withdrawn the young workers from the labour market. This study aims to investigate the factors influencing young worker to work in digital labour platforms and secondly, to examine the legal framework on labour rights and social security protection for young workers working in digital labour platform. In this study, qualitative approach in form of semi-structured interview is adopted to reach the objectives of this study. Five young workers between the age of 18-24 years old working in digital labour platform interviewed for this research. Thematic analysis is used to analyse the data. Research shows that young workers attracted to work in digital labour platform because of flexible working arrangement, high income, and self-employment. The findings of this study contribute to strengthening the protection of young workers working in digital labour platforms.

Fostering Case-Based Learning by Developing Hypermedia-Based Module in Educational Statistics

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Abstract:

In higher education, Educational Statistics is one of the core courses required to fulfill the graduation standards of study programs in the Faculty of Education. This course is widely recognized as challenging due to its demand for higher-order thinking skills, leading educators to propose case-based learning (CBL) as a teaching model. However, several studies indicate that the effective implementation of CBL still relies heavily on the use of appropriate learning media to achieve the learning process and objective, including at Universitas Negeri Surabaya. This study aims to develop a hypermedia-based module to reinforce case-based learning (CBL) in the context of learning Education Statistics. This study employed a research and development design based on the Lee and Owens Model, which involved the participation of media experts, material experts, learning design experts, and 78 students as research subjects. The data were collected through questionnaires and analyzed using descriptive quantitative methods. The results demonstrated a significant relationship between the hypermedia-based module and CBL, particularly in supporting each phase of the CBL process. Additionally, the developed hypermedia-based module improved student engagement, interest, and understanding, thereby establishing its feasibility for use in the Educational Statistics course.

Innovating Roleplay Method Assisted by WhatsApp Bots as Learning Media for ESP: Insights from Student Experiences

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Abstract:

In today's educational landscape, technology plays a crucial role in transforming how we teach and learn, with tools like WhatsApp enhancing collaboration and promoting active engagement. Particularly in English for Specific Purposes (ESP), it is essential to make language learning both relevant and practical for students. Techniques such as roleplay, supported by digital resources like WhatsApp bots, create engaging, interactive environments that cater specifically to students' needs for language development. This study focuses on the perceptions of 35 ESP students at SMK PGRI 1 Gresik regarding the use of WhatsApp bots as a learning medium within a roleplay method. A mixed-methods approach was employed, combining quantitative surveys and qualitative interviews to gather comprehensive insights into students' experiences with this innovative learning tool. By exploring these valuable insights, this research aims to assess the effectiveness, accessibility, and user-friendliness of the learning medium, contributing to the ongoing discourse on technology in education and its potential to foster more interactive, engaging, and enriching learning experiences.

Acalypha indica-Infused Hydrogel for Anti-Inflammatory and Antimicrobial Applications

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Abstract:

This research focuses on the development of an anti-inflammatory and antimicrobial hydrogel using *Acalypha indica* extract, a plant known for its therapeutic properties. The hydrogel was synthesized using natural polymers such as chitosan and alginate, cross-linked to enhance stability and moisture retention. Bioactive compounds from *Acalypha indica*, including flavonoids, alkaloids, and terpenoids, were incorporated into the hydrogel to harness their anti-inflammatory and antimicrobial effects. In vitro studies showed significant anti-inflammatory activity by reducing key inflammatory markers, while the hydrogel demonstrated effective antimicrobial properties. The hydrogel's ability to retain moisture supports wound healing by creating a moist environment, reducing pain, and preventing infection. This dual-function hydrogel is ideal for applications in wound care, burn treatment, skin infections, and post-surgical recovery, providing a comprehensive solution for tissue regeneration and infection control. The results suggest that *Acalypha indica*-infused hydrogels have strong potential to enhance the healing process while minimizing the risk of infection, making them a promising option for advanced healthcare applications.

Fostering the Next Generation of Farmers: The Critical Role of Teachers in Rural Areas in Indonesia

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Abstract:

The regeneration of agriculture in rural areas faces numerous challenges, one of the most prominent being the declining interest among rural youth to work in the agricultural sector. Teachers play a crucial role in ensuring the continuity of agricultural regeneration. This study aims to answer three key research questions: (1) Do teachers in rural schools have farming experience? (2) Do rural teachers teach agriculture to their students? and (3) Have teachers ever engaged students in practical fieldwork? The research was conducted in Ciasmara Village, Bogor Regency, Indonesia, from January 2024 to September 2024. Ciasmara Village is one of the major rice-producing centers in Bogor, which holds a key position in maintaining food security for the Jakarta region. A total of 60 teachers were selected from two senior high schools in Ciasmara. The study found that only 16.67% of teachers had practical agricultural experience, while 83.3% did not. Furthermore, only 30% of teachers involved students in practical agricultural activities, while 70% had never taken students to the fields or gardens for hands-on practice. Only 33.3% of teachers had taught agricultural subjects to their students. These findings present new challenges that must be addressed by stakeholders to ensure the sustainability of agricultural education in rural areas.

From Remote Village to Tourist Destination: Transforming Community-Based Tourism through Village Leadership and Ancillary Aspects

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Abstract:

This study examines the vital role of village leadership in coordinating ancillary services to ensure sustainable community-based tourism (CBT) development in Indonesia. This study aims the research explore how village leaders have effectively handled various ancillary components to support rural tourism and generate socio-economic advantages for local communities. Conducted in 2023 and 2024, focusing on the case of Ciasmara Village which is located within the Geopark Pongkor area, Ciasmara is a notable tourist destination in West Java Province, Indonesia. Key challenges identified through interviews and document analysis include limited financial resources, shortages in human capital, and coordination issues among stakeholders. Despite these obstacles, the study highlights innovative strategies such as securing grants, fostering inter-sector collaborations, and establishing community tourism organizations that village leaders have employed to navigate these challenges. The findings underscore the importance of leadership initiatives and strategic management of ancillary aspects in contributing to the long-term success and sustainability of CBT. This research provides valuable insights for policymakers, tourism practitioners, and community leaders dedicated to advancing inclusive and sustainable tourism in rural areas.

Advancing Cardiovascular Diagnostics: Deep Learning Approaches for Heart Disease Detection

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Abstract:

Cardiovascular diseases (CVDs) remain a leading cause of morbidity and mortality worldwide, with early and accurate diagnosis being crucial for effective management. Traditional diagnostic methods, while effective, often suffer from limitations related to interpretation complexity, time constraints, and variability in outcomes. Recent advances in deep learning offer new opportunities to enhance the diagnosis, risk prediction, and treatment of cardiovascular diseases through automated and highly accurate data analysis. cardiovascular disease refers to any disorder of the heart and blood vessels, including hypertension, coronary artery disease (CAD), cardiac dysrhythmias, cerebrovascular disease, valvular heart disease, cardiomyopathies, peripheral vascular disease, and congenital cardiac abnormalities.

Significance of Intelligent Machine Learning Techniques in Forecasting the Development and Progression of Multiple Sclerosis

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Abstract:

The objective of this investigation is to predict the start and progression of Multiple Sclerosis (MS) using an enhanced gradient boosting trees algorithm, taking into account a wide range of clinical and demographic factors. The study made use of Dataset, an openly available dataset from a prospective cohort study of people of Mexican mestizo heritage who were given an identification of Clinically Isolated Syndrome (CIS). From 2006 to 2010, a methodical gathering and evaluation of data on individual characteristics was conducted in order to examine possible relationships with the development of multiple sclerosis. The gradient boosting trees algorithm was applied when creating models for forecasting, harnessing patient-specific characteristics, including demographic factors and clinical data. With a small standard deviation and a mean accuracy of 99.63%, the classifier behaved quite well. There was only one false positive and no false negatives compared to the confusion matrix. Important metrics like recall, accuracy, and AUC all got within range of 1, showing how well the classifier could confidently distinguish between the two classes. Superior performance was found when compared to previous research in the literature, demonstrating the classifier's efficacy and accuracy in predicting MS. The direction of the gradient boosting trees technique presents a viable path for early diagnosis and customized treatment by diagnosing MS based on clinical and socioeconomic factors.

Keywords: Multiple Sclerosis (MS), Clinically Isolated Syndrome (CIS), Confusion Matrix

Predictive Analysis of Hashimoto's Thyroiditis using Advanced Machine Learning Techniques

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Abstract:

The Thyroid gland is a key organ in the body responsible for releasing and regulating hormones that control metabolism. These hormones influence nearly every tissue in the human body. In healthcare, machine learning models play a vital role in disease analysis and prediction. With the vast amount of data available in the medical field today, machine learning algorithms are essential for extracting valuable insights from high-dimensional datasets and identifying diseases in their early stages. This aids healthcare professionals in making more informed treatment decisions. In this study, machine learning techniques are employed to predict the likelihood of patients developing thyroid disease, using benchmark data from the UCL Machine Learning Repository. The research applies various machine learning algorithms, including Naive Bayes, Logistic Regression, and Multilayer Perceptron, to accurately diagnose hypothyroidism based on patient information.

Keywords: Thyroid, Analysis, Feature Engineering, Machine Learning

Prognosis Prediction of Carcinoma using Novel Feature Selection in Machine Learning Techniques

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Abstract:

Breast carcinoma is the process of growth abnormal lump in the breast. It begins in the cell and it scatter all over the body. Breast carcinoma is first detected by diagnostic tests and procedures that may be used to confirm the presence of cancer and to determine if it has been Spread or not. In Worldwide, breast carcinoma is the majority frequently recognized mortal cancer in women and the leading source of carcinoma death among the women. Early analysis of carcinoma on discovers symptomatic patients as premature as feasible so the medical supervisor has able to provide the successful treatment. When the carcinoma has diagnosis on later then the possibility of survivance is less, cost of the treatment will be high. This research has focused on the type of the carcinoma at the early stage of cancer to save the life of the patients. Breast carcinoma types of benign/malignant prediction throughout the proper machine learning techniques. WBCO dataset are utilized in the study. The breast carcinoma mortality ratio is increasing has to be noticeable. This research actuates the deep learning techniques in the breast carcinoma prediction. The feature selection is based on the proposed OPFF algorithm to select the features of high significance in the algorithm which helps to improve the classification accuracy. The classification algorithm of XGBMLP are based on the deep learning neural networks to improve the classification accuracy with and without feature selection and concluded the proposed classification algorithm have higher accuracy when compared to the various existing algorithm.

Keywords: Carcinoma, Prediction, Feature Selection, Deep Learning

The Multiplying Effect of Micronutrients Deficiency on Human Development in ASEAN Countries

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Abstract:

Southeast Asia has the highest prevalence of micronutrient deficiencies worldwide, primarily for six micronutrients: vitamin A, iron, zinc, iodine, vitamin B9 (folic acid), and vitamin B12. In 2019, the prevalence of moderate to severe food insecurity in the ASEAN community was 18,6 percent, which led to approximately 24 percent of the population consuming inadequate amounts of essential vitamins, minerals, and trace elements. Micronutrient deficiency could affect a country's individual and human development, mainly regarding global health and economic outcomes. The present study aimed to synthesize and critically analyze the multiplying effect of micronutrient deficiency on human development in Southeast Asia countries. A systematic literature review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. Bibliometric software such as VosViewers and Nvivo were used to map and analyze the qualitative data. The initial sample was 231 articles indexed in Scopus, PubMed, Web of Science, and Embase databases. This study focused on finding the prevalence and the varied effect of each micronutrient deficiency and how it impacts human development measured in Southeast Asia countries. It was expected that micronutrient deficiency affects not only the Human Development Index (HDI) but also the Socio-Demographic Index (SDI) and Healthcare Access and Quality Index (HAQ). This study will contribute to the literature as the first systematic review exploring the multiplying effect of micronutrient deficiency on human development in Southeast Asia. In addition, the findings of this study can provide recommendations for improving food and nutrition security policies, especially in ASEAN communities.

Keywords: Micronutrients Deficiency, Human Development, South East Asia, ASEAN, Systematic Literature Review

Faculty Understanding of Student Learning Outcomes to Develop Teaching and Learning Activities

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Abstract:

The study focused on the Subject Learning Outcomes (SLO) in the AY 2022 – 2023. The method is mixed and explores the SLO results and narratives of teachers. Data was generated through the management information system, and a focus group discussion was participated by six faculty. It determined the results of SLO and tested the significant difference in the subject area and grade level in terms of written works, performance tasks, and examinations. It explores teachers' narratives through a focus group discussion of their understanding of SLO in terms of preparation of curriculum, instruction and assessment, reporting and revision of curriculum, and Continuous Quality Improvement (CQI) report. In the results of the SLO, written works and examinations have not been attained while the performance tasks have been attained. In the test of significance, the written works and examination have significant differences however, the performance tasks have no significant difference in the subject area. The test of difference of written works and examinations has no significant difference however, performance tasks have significant differences in grade level. The narratives resulted in a demand for an explanation of the purposes of SLO and training for the CQI report which resulted in a training activity for teaching and learning.

Keywords: Learning Outcomes, OBE, Assessment, Teaching and Learning Activities

An Investigation into Factors Affecting Leadership Styles and their Impact on Employee Turnover at a Pharmaceutical Organisation in Johannesburg

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Abstract:

This study examined factors which influence the leadership style of leaders in the organisation, as well as the impact of that leadership style on employee turnover within the organisation. The awareness contributes to knowledge expansion in the area of the study problem statement. The study was guided by the following objectives: to identify the factors affecting leadership styles at a pharmaceutical organisation, to determine the impact which leadership styles have on employee turnover at a pharmaceutical organisation, to identify the link between leadership styles and employee turnover and to make recommendations on how to improve the impact of leadership styles on employee turnover at a pharmaceutical organisation. The study established the importance of investing the factors that influence the leadership style of leaders in the pharmaceutical industry. A thorough review of the existing literature on leadership styles and employee turnover provided a theoretical framework for the study. A detailed explanation of the seminal theories used as guidelines in explaining the variables were made which was followed by findings from recent empirical studies conducted around the world, indicating how different leadership styles impact employee turnover. This study employed a quantitative research approach to investigate the relationship between personality factors and leadership style. The analyses included descriptive statistics and inferential statistics such as Correlation Analysis, T-test, and Multiple Regression of leadership style and personality variables. Cronbach's Alpha was used to test the reliability of the research instrument. The findings indicated that aspects such as communication and compensation may not be aligned with employee needs, leading to a negative impact on employee turnover. Moreover, the study highlighted that employees prefer the transformational leadership style, particularly in contrast to the laissez-faire leadership style. There was also a need for adjustments in information dissemination and compensation to better meet the expectations of employees. The study recommends that leaders adopt a hybrid of the transformational and transactional leadership styles, incorporating attributes such as contingent rewards into their leadership style to improve job satisfaction among employees and therefore improve employee turnover. The study concluded that work conditions at the pharmaceutical organisation are falling short of employee expectations.

Exploring International Sales Factors and Growth Impact for Mrembo Naturals Limited in Rwanda

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University of South Africa, South Africa

Abstract:

This dissertation explores the factors affecting international sales and growth impact for Mrembo Naturals in Rwanda. As the cosmetic industry continues to evolve, understanding the contextual factors influencing a brand's success becomes paramount. The study was guided by the following objectives: to identify the factors affecting MNLtd's product sales in the international markets with a focus on Rwanda, to determine the factors that impacts the future growth of MNLtd in the international market with a focus on Rwanda, to determine strategies which MNLtd can adopt to overcome the challenges it faces in the international market and to provide recommendations on measures to improve sales factors and growth for MNLtd in East Africa. The study establishes the significance of investigating the factors that contribute to the success of MNLtd in the Rwandan market. A thorough review of existing literature on sales and growth factors within the cosmetics industry provides a theoretical framework for the study. The literature identifies key concepts and success factors relevant to the enterprise laying the groundwork for subsequent analysis. A quantitative research methodology was adopted to capture the different aspects of MNLtd's market presence, consumer behavior, and competitive landscape. The data was analysed using the statistical software called STATA, Version 18. The data were analysed by using frequency tables, percentages, mean and standard deviations. Tabulations were made to present results of the research. These aspects were scrutinised to unveil opportunities and challenges faced by the enterprise. An in-depth analysis of the different factors was presented where findings revealed that there are different strategies that can help enterprises in the beauty and cosmetics industry to understand the key success factors that a business should focus on while working on other factors that can hinder its growth. In conclusion, the study has demonstrated that expanding into other countries could create opportunities for the enterprise. It is recommended that for MNLtd to approach the implementation of the findings of the study, the enterprise should consider the unique characteristics of the East African market and adapting strategies as needed, based on ongoing feedback and market dynamics.

Nanobots: Revolutionising Medicine and Beyond – A Comprehensive Review

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Abstract:

Nanotechnology, particularly through the development of nanobots, is poised to revolutionize various fields, especially medicine. These nanoscale devices operate at the molecular level, enabling unprecedented precision in tasks such as drug delivery, diagnostics, and tissue restoration. Equipped with tools like nano lasers, sensors, and cameras, nanobots can monitor internal conditions and target unhealthy cells while minimizing side effects associated with traditional therapies. This comprehensive review explores the unique properties of nanobots, including their ability to enhance drug delivery efficacy and perform real-time diagnostics. It also addresses the materials used in nanobot construction, such as organic and inorganic substances, and highlights their applications across medical disciplines, including cancer treatment, hematology, and dentistry. Despite their potential, the deployment of nanobots raises ethical, safety, and regulatory concerns that must be addressed to ensure their effective integration into healthcare. This review aims to provide insights into the current state of nanobot technology and its future prospects in advancing medical treatment and improving patient outcomes.

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The Role of Nano-Biofertilizer in Agroecosystem Conservation for Plants Under Stressed and Non-Stressed Conditions

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Abstract:

The use of nano-biofertilizers (NBF) has emerged as a key innovation in addressing the increasingly complex challenges of agricultural production, including soil quality degradation and inefficient fertilizer use. This review article thoroughly explores the role of NBF in enhancing crop productivity, with a focus on the mechanisms of interaction between nanoparticles and microorganisms that facilitate nutrient uptake. Additionally, it discusses various NBF synthesis techniques, including physical, chemical, and biological methods, and how this technology can address environmental challenges such as drought, salinity, and pathogen attacks. The application of NBF to different types of crops, under both stress and normal conditions, has demonstrated significant improvements in growth and yield. NBF holds great potential for promoting sustainable and environmentally friendly agriculture by optimizing natural resources, improving soil quality, and reducing the negative impacts of chemical fertilizers. This literature review aims to provide a comprehensive overview of the opportunities and challenges in the development and application of NBF in the future.

Keywords: Agroecosystem, Nano-biofertilizer, Nanoparticles, Microorganisms, Crop Stress

Study Spatial Kampung Pahandut, history and Image Regional of Palangka Raya Cities

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Abstract:

Palangka Raya is the capital city of the Indonesia province of Central Kalimantan. In the begin the story of capital city started from Kahayan River area in kampung Pahandut, in *tetek tatum* (truth lamentation / narrative) the Dayak tribe tells about how their ancestors traveled in ancient times looking for a new village (*lewu*). The *lewu* is a place to be used as a residence to be used as a hamlet, therefore by carrying out with *manajah antang* divination (falcon divination) and followed by *manok jagau* (rooster) crowing as a symbol of the language for choosing a stationary place (*lewu*). Like in the legendary story of *Sempung* who went on to adventure looking for stationary place and also the story about the couple Bayuh and Kambang looking for the embryo of lewu the city of Palangka Raya.

When the Dayak tribe carries out the process of selecting *uka melai* (residence) to become a *lewu* (small village) they use a fortune-telling medium called *manajah antang*, and *petenung* (Nahan, 2010:21). Next, *Lewu je mangkasulak* was the forerunner of the city of Palangka Raya which started from Pahandut Village. According to Lautt (2023), there was a couple named Bayuh and Kambang looking for a new place to stationary place, and then they went downstream by boat and brought a rooster as a guide to where they stopped at a certain location. When the rooster crowed 7 (seven) times, this crowed rooster symbol and good sign it was a certain stationary place for the beginning place. The news about the land being suitable for *eka satiar* was heard by residents of the *Lewu Rawi* community, where husband and wife Bayuh and Kambung came from. In the end, Bayuh's Eka Badukuh experienced rapid development and became a large settlement.

Based on the historical story of the forerunner of the city of Palangka Raya, especially about the development of Kampung Pahandut, it becomes an interesting story that this village is not just a corner of the city containing irregular settlements with distances between houses closely, but also this kampung was the potential to arrangement for the tourism Pahandut which is able to highlight history place of Bayuh-Kambang and Ngabe Soekah as meaningful symbolic intersubjectivity.

Apart from the existence of Pahandut village which requires an arrangement design that is able to explore more deeply the potential of this village as a tourist attraction in the city of Palangka Raya, with the development of Pahandut village, and currently increasingly abandoned and seen as an unsafe area at night. So over time, this village became an abandoned corner of the city even though it has an interesting history to appreciation of the meaningful old city spaces. In order search for the potential of Pahandut as the image of the city of Palangka Raya the river is also one image of space of the city as the initial gateway from Rambang harbor with river tour city while enjoying the sunset with the lights of the Kahayan Bridge, and that why the history of Pahandut as image embryo city concept requires a study to exploring this research.

Keywords: Study Arrangement, Space, Pahandut Village, Image of City

Research on the Application of Transformer Deep Learning Model in Content Analysis and Theme Modeling of the Prajnaparamita Heart Sutra

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Abstract:

This paper applies the Transformer model to topic modeling in Prajna Paramita Heart Sutra. Then, by pre-processing the original text and vernacular notes, it uses the Transformer model for theme modeling, optimizes the number of themes, optimizes the weight of keywords, and finally worked out five key topics: Prajna Paramita Heart Sutra, Buddhist theory, cultivation and practice, Buddha and Bodhisattva, Emptiness and Truth. These themes are quite consistent across various model outputs. These themes are categorized, keywords are extracted, and relationships are matched using the Transformer model at a quite high level of precision, recall, and accuracy. Meanwhile, this research confirms that, in the topic modeling process based on complex texts, the Transformer model is indeed effective and reliable, providing new technical support and a reference for studies in the field of classical Buddhist studies and text topic modeling. This is basic research work that can provide the basis for future investigation.

Keywords: Transformer Deep Learning, Topic Modeling, Content Analysis

The Role of Documentary Film in Interior Design Education

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Abstract:

Interior design education currently requires greater emphasis on the conservation aspects of historic buildings and their associated values. However, there is a notable deficiency in interactive learning methods that can enhance awareness among students and the broader community regarding the significance of interior design education in supporting the preservation of local historic structures and cultural heritage. Literature reviews indicate that students can grasp the complexities and historical importance of buildings and their contents through rich visualizations and comprehensive narratives. This research seeks to investigate the potential of documentary films as an educational resource that can effectively integrate architectural and interior design information related to historic buildings, utilizing immersive technology as an interactive learning tool. The methodology employed is qualitative, utilizing a case study approach focused on documentary films that emphasize the conservation of historic buildings and their artifacts. Data was gathered through observation, literature review, and content analysis of relevant documentary films. The findings reveal that incorporating documentary films into interior design education offers substantial advantages, such as enhancing contextual understanding, refining analytical skills, illustrating practical challenges and creative solutions, and providing inspiration for students in their design endeavors.

The Design of a New Single Phase Cascaded Quasi-Z-Source Inverter with High Boost and Better THD

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Abstract:

Traditional voltage source inverters (VSIs) and current source inverters (CSIs) have been widely used in industry for a long time. However, neither the voltage source nor the current inverter can function as a buck-boost inverter. To perform as a buck-boost inverter, they need an additional boost or buck DC-DC converter. Due to this major drawback of VSI and CSI inverters, Z-source inverters (ZSI) have been getting attention over the last two decades. Different types of single- and three-phase Z-source inverters have been analyzed over the years. By addressing the above matter, this article represents a new single-phase cascaded quasi-Z-source impedance (C-QZSI) network inverter containing a modified unipolar SPWM switching scheme. In this study, the working principle of the modified unipolar SPWM technique and the proposed cascaded qZSI are discussed. It is observed that modified unipolar PWM schemes having an additional boost switch employed on a qZSI inverter circuit result in a larger boost voltage/current and improved THD at its load. The article also deals with the analysis, simulation results, and comparison of the proposed method with the QZSI topology having different control schemes. MATLAB/Simulink simulation software was used to perform all the simulations. The presented technique results in a voltage boost with a value of 417.6 V, which is 39% larger than the QZSI topology with a modified switch technique. In addition to that, it gives us a lower THD than the traditional qZSI topologies, with a value of 0.91%.

Integrating Virtual Experiential Learning Activities Through Interactive Website for Interior Design Education

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Abstract:

Interior design education is currently confronted with the rapid pace of technological advancements and the necessity for adaptation amid disruption and digital transformation. In response to these challenges, this study introduces an interactive website that leverages immersive technology and experience-based learning to enhance online interior design education. The platform is crafted to enable students to cultivate both practical and theoretical skills within a collaborative digital framework. The development of the site employs qualitative methodologies, including literature review and design planning, commencing with a needs assessment derived from interviews and observations involving academics and interior design students. The design of the site emphasizes user experience, incorporating interactive features such as virtual reality (VR) and augmented reality (AR) to foster a realistic educational atmosphere. Findings from the study indicate that this platform significantly enhances student comprehension and engagement in the learning process. The application of immersive technology has demonstrated its effectiveness in replicating real-world scenarios, enabling students to virtually explore design concepts and gain a deeper understanding of interior design principles. This research contributes to the academic and design communities by offering an innovative educational model that adapts to technological advancements, serves as a training resource for aspiring designers prepared for digital transformation, and provides a framework for government initiatives aimed at developing technology-driven and innovation-focused educational policies.

Precision Magnetic Field Monitoring and Dynamic Calibration

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Abstract:

This project concerns designing and elaborating a magnetic field strength calibration and detection system engaging Hall effect sensors, MOSFETs (operating as a switch), and operational amplifiers (non-inverting configuration) within an analog circuit. The Hall effect sensor is used for detecting variations in magnetic fields by measuring the voltage difference initiated by the magnetic flux. The output signal from the sensor is amplified and analyzed through an operational amplifier, with a MOSFET being integrated for signal modulation and control. It has been calibrated to measure various strengths of the magnetic field, ensuring precise detection. Since the output can be so accurate, the system is suitable for applications encompassing magnetic field monitoring, material sorting, and industrial automation. It is also suited for task featuring time-keeping the speed of wheels and shafts to units for tachometers and anti-lock braking systems. The primary challenges remain in noise reduction during signal processing and high accuracy in calibration. The system developed here can serve as a pillar for more complex magnetic field sensing applications. This research helps to tackle these challenges and provides a reliable framework for further developments in magnetic field sensing technologies. Such research outcomes not only add value to the Art of Magnetic Field Measurement but also lays the groundwork for innovative applications across various industries leading to enhance operational productivity and safety.

Keywords: Magnetic Field Strength detection, Hall Effect Sensor, MOSFET, Operational Amplifier, Calibration

An Exploratory Approach to Managerial Innovation: From Distinctive Characteristics to Practice

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Abstract:

Innovation is the "cause of the economic evolution" according to Schumpeter's theory (Schumpeter, 1911). Organizations have to innovate their products, services, but also their managerial practices which refers to the expression "managerial innovation" used for the first time by Kimberly (1981). Managerial innovation has seen a renewed interest in going beyond the organizational and administrative innovation (Damanpour & Aravind, 2012). However, research on managerial innovation remains inferior to that on technological one, On the one hand, studies related to managerial innovation remain rare (Damanpour & Aravind, 2012; Duboulouz & Bocquet, 2013; Volberda et al., 2014; Walker et al., 2015). On the other hand, the existent and scattered literature highlights the difficulty regarding the identification of managerial innovation due to its abstract nature. It is in this perspective that our research aims to fill the gap related to the analysis centered on the distinctive characteristics of managerial innovation. Through a review of literature, the research aims to answer the following questions:

1. What are the intrinsic characteristics of managerial innovation?
2. What are the determinants and factors influencing the adoption of managerial innovation?
3. What are the main managerial innovations adopted so far?

The review contributes to the state of art by offering a cartography of managerial innovation with concrete examples of practices qualified as managerial innovations thus making its conceptual delimitation and practical application easier.

Hybrid Energy Solutions: Solar-Tracking Panels and Piezoelectric Pavement Integration for Sustainable Power Generation

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Abstract:

This project looks at an alternative method for improving solar energy capture efficiency by incorporating a solar tracking mechanism with piezoelectric plates. Solar trackers increase energy output by ensuring that photovoltaic (PV) panels always face the sun as it moves across the sky. However, we think there is still room for further enhancing efficiency by capturing the electrical energy that static electricity can generate through the use of piezoelectric materials. Our design addresses this complexity by enabling our dual-function solar tracker to not only ensure that the panels of the PV solar system tend to the movement of the sun but also harness the energy of vibration forces due to wind and other movement tendencies. A micro-controller-actuated tracking system allows maneuverability of the panels in the direction of the sunlight at all times. Consequently, PZT plates at certain locations harvest mechanical energy from the surroundings and convert it into additional electrical energy. In order to test our concept, the solar tracker structure was compared in energy output with our additional piezoelectric system and without it. Key metrics included total generation energy plant PV system, available derivable and insuperable from the piezoelectric devices brought additional power gained. The results so far are insightful and show that there is an improvement in the efficiency of energy harvested, which offers hope for this merger of technology.

Our project assists in the continuing development of such systems for other implementing states by pointing out how this multi-functional system is beneficial in increasing the generation of solar energy.

Keywords: Solar Tracker, Piezoelectric

Enhancing Oyster Mushroom Cultivation with Solar-Powered IoT and Machine Learning: Predicting Harvest Readiness

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Abstract:

The cultivation of oyster mushrooms demands skillful control over environmental conditions and timely harvesting to optimize yield as well as quality. By using the IoT system, key growth parameters — temperature, humidity, air quality, and light intensity — are monitored. Simultaneously, a machine learning framework that uses Convolutional Neural Networks (CNNs) and object detection models analyze and capture patterns related to environmental factors that influence mushroom growth stages. This offers system integration with solar power to enhance sustainability and automates the environmental monitoring and control solutions thus reducing operation costs while keeping the quality of yield at a higher level. This novel study not only speeds up the growing process but also helps predict exactly when the crop is ready to harvest. Harvesting oyster mushrooms at the right time ensures they reach the best size and weight, leading to larger yields while preserving their taste, texture, and nutritional value for customer satisfaction. Accurate predictions of harvest readiness help farmers plan better to meet market demand and increase their profits. The result of this study used a machine learning model to predict if oyster mushrooms can be harvested. The trained model achieved 85% accuracy, with 97% precision and 82% recall, resulting in an F1 score of 89%. Cohen's Kappa analysis showed a strong match between the model's predictions and the farmer's judgment, with a Kappa value of 0.654 and a p-value of 0.000, meaning the model is reliable.

SolPort-Powermate: An Environmentally Friendly Solar Panel Powers a Smart Inverter

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Abstract:

Nowadays, people are having problems in remote places with a lack of power, the increasing demand for sustainable energy solutions has driven the development of innovative technologies that harness renewable energy sources. To address this issue, our project presents the design and implementation of a reliable and eco-friendly power source for remote and off-grid applications. This study describes the creation and application of a portable solar-powered inverter intended to offer rural and distant communities a dependable and environmentally responsible source of electricity. The project's goal is to develop a portable, adaptable, and sustainable power source to address the issues associated with these areas' scarce or nonexistent power supply. The results demonstrate that the portable inverter provides a stable output with high efficiency, making it suitable for various uses such as charging phones, providing power backup, supporting outdoor activities, and serving remote areas with limited access to the electrical grid. The process consists of thorough project planning, high-efficiency component selection, system design, prototype creation, and thorough testing. Integrated into a portable system, essential parts consist of a monocrystalline solar panel, a lithium-ion battery, an MPPT charge controller, and a pure sine wave inverter. The dependability and efficiency of the inverter under many circumstances were guaranteed by performance and safety tests. Field testing proved the system's applicability and usefulness in actual situations, validating its capacity to raise sustainability, promote economic growth, and improve the quality of life in underprivileged communities. Our project offers multiple benefits to society, including environmental, economic, technological, infrastructural, and long-term sustainability advantages. Findings indicate that the portable solar-powered inverter is a viable option for supplying dependable and clean electricity. This qualifies it for use in off-grid dwellings, emergency backup, and outdoor pursuits. Subsequent efforts will refine the architecture to enhance its effectiveness and investigate supplementary functionalities like scalability and remote monitoring. In conclusion, this portable inverter with solar power represents a significant advancement in the field of renewable energy, offering a versatile and practical solution for portable power needs.

Keywords: Portable Solar Inverter, Renewable Energy, Off-Grid Power, Battery Management, Sustainable Energy, Rural Electrification, Energy Efficiency, Emergency Power Supply, Environmental Sustainability

RFID Based Challan System

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Abstract:

The project involves detecting traffic signal violations by vehicles and issuing e-challans through a combination of programming and hardware. Using RFID technology, which includes tags that store data and transmit it wirelessly to readers, the system identifies vehicles that break signals. The microcontroller compares the information from the reader with the stored details of the vehicle, and if a violation is detected, an e-challan is automatically sent to the vehicle owner's registered mobile number and the Regional Transport Office (RTO). The owner can pay the fine either in person at the RTO or online if linked to an electronic payment system. This system also facilitates toll collection using the same RFID tags. Through vehicle-to-roadside communication, electronic monetary transactions are made between the vehicle and the toll station. The RFID tags store a unique ID and related information for each vehicle. When a vehicle approaches a toll gate, the reader picks up the tag's data, and the toll fee is deducted from the user's account. The system also checks for outstanding fines, road taxes, or insurance issues. If any charges are due, the toll gate remains closed until payment is made. Additionally, if the system identifies a stolen vehicle, a notification is sent to the nearest police station. All vehicle-related documents, such as ownership and insurance, are verified using the RFID tag.

Keywords: E-Challan, RFID Technology, Vehicle-To-Roadside Communication

Secure Health Insurance Portability Using Blockchain and Cloud Technologies for Decentralized Record Transfer

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Abstract:

Healthcare and insurance systems face significant challenges in ensuring the secure portability and transfer of sensitive records due to fragmented infrastructures, data privacy concerns, and inefficiencies in data sharing. Current centralized systems that are aware of breaches, they are not compatible and reduce the degree of patient control or autonomy which in turn escalates the transfer between care giving institutions and insurance firms. To deal with these challenges, in this research, the BCIF-EHR model integrating the IoT Healthcare Security Dataset and the US Health Insurance Dataset is proposed. This new concept combines clinical IoT-based ICU data and financial insurance information into one format that supports secure decentralized record transfer. Blockchain network is applied for storing data in a decentralised and extremely secure manner, thereby ensuring that data cannot be manipulated once recorded while cloud systems ensure availability of large datasets in a real-time basis. Thus, the BCIF-EHR framework safeguards patient ownership of data, includes embedded smart contract for claim validation, and adheres to relevant rules such as HIPAA and GDPR for the elements of privacy. The approach is about preparing the data to standardization by using synthetic IDs, storing them using blockchain, and the use of cloud services for handling Big Data. Measures include the ability to transfer data within a stated time, execute transactions per time, or measure up to the set security standards. As the results presented indicate, there is a 30% decrease in operational downtime, and improved data security and integration capabilities of the framework prove the ability of such a system to eliminate existing shortcomings. As the technological framework of protecting disparate datasets while enabling efficiency in managing and transferring health and insurance records, BCIF-EHR optimizes heterogeneous datasets. It is with the view of redressing this situation that this study presents a novel perspective towards the advancement of current conventional health care and insurance systems technology.

Development of Artificial Intelligence Model for Defect Detection of Carrots

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Abstract:

The accurate detection of defects in carrots is critical for ensuring quality control in the design of processing equipment. This study focuses on the development of an advanced artificial intelligence model for detection of defects on the surface of carrots. A comprehensive dataset of carrot defect images was prepared in uniform conditions ensuring robust model training. Feature extraction and preprocessing techniques were applied to enhance defect visibility and improve classification accuracy. Various machine learning approaches, including convolutional neural networks, were evaluated for their performance in detecting defects with high precision and recall. The results demonstrated the model's capability to achieve superior accuracy compared to conventional methods. The proposed artificial intelligence system offers a reliable, efficient, and scalable solution for the design of carrot processing equipment.

Keywords: Carrots, Surface Defect, Artificial Intelligence Model, Image Dataset, Detection

Enhancement of the Procedural Map Generation Algorithm Used in the Game Lethal Company

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Abstract:

The utility of procedural content generation is becoming more prevalent as use of AI is becoming more prominent. Generative content may become the norm in this era of the rise of AI usage. In videogames, generative AI is most widely known for its use in the genre of "roguelikes". Roguelikes are videogames with a theme that revolves around procedural content generation (PCG). This research focuses on enhancing the Procedural Map Generation (PMG) algorithm for "Lethal Company," a popular roguelike game known for its unique PMG. The study identifies significant limitations within the current algorithm, particularly issues that reduce player agency and result in "checkmate scenarios" where players have no viable gameplay options. This problem in turn creates scenarios that are unplayable, ultimately disregarding its identity as a game. By integrating concepts of simulated randomness and player agency checks, the research proposes an enhanced PMG algorithm that aims to balance randomness with strategic elements, thus maintaining and ensuring fair play and maintaining the status of a playable game. The proposed algorithm removes 99.79% of all checkmate scenarios created by the original algorithm. The effectiveness of this new algorithm is qualitatively validated through a series of player agency map checks, demonstrating its potential applicability in similar games within the industry, and its potential to present solutions to the common problem of unwanted scenarios that spawn out of unsupervised randomness of procedural content generation in general.

Enhanced Content-Based Filtering Algorithm Applied in Topic Recommendations for First Year Computer Science Students of Pamantasan Ng Lungsod Ng Maynila

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Abstract:

This study presented an enhanced content-based algorithm for topic recommendations tailored to first-year computer science students at Pamantasan ng Lungsod ng Maynila. The enhancement focused on addressing the cold-start problem, a common issue caused by the algorithm's dependence on user interactions for generating personalized recommendations. To overcome this, the Felder-Silverman Learning Style Model (FSLSM) was incorporated, creating a more comprehensive user profile that allows for accurate and personalized initial recommendations for new users. FSLSM considers four dimensions: (1) Processing Dimension (Active/Reflective), (2) Perception Dimension (Sensing/Intuitive), (3) Input Dimension (Visual/Verbal), and (4) Understanding Dimension (Sequential/Global). Additionally, the user's current semester was included to better align recommendations with their curriculum. Results showed that the enhanced algorithm effectively provides initial personalized recommendations even without prior user interactions, demonstrating the system's improved capability to deliver relevant and engaging content to new users.

The Impact of Community Activities on The Level of Seawater Pollution at Kualo Beach, Bengkulu City

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Abstract:

The increase in community activities around the beach can lead to pollution and disturb the sustainability of coastal areas, particularly in a section of Pantai Panjang, namely the Kualo area, Pasar Bengkulu, and its surroundings. This study will discuss the types of waste and litter disposed of by tourists and local residents into the sea. It will also address the causes of waste and pollutant disposal activities, as well as the current condition of the coastal areas due to this waste and pollutant disposal. The research method used is a literature study and survey method with a descriptive quantitative approach. The parameters observed include turbidity, odor, and pH. The sampling points consist of two stations, selected based on their proximity to sources of activities believed to contribute to pollution in the coastal waters, including residential wastewater (sewage), urban wastewater (urban stormwater), and tourism. Based on observations of the drainage channels at stations 1 and 2, pollution was found to result from local residents disposing of household waste and wastewater into these drainage systems. The drainage channels at both stations show signs of pollution, indicated by poor water quality, with pH levels between 4-5, as well as murky water and unpleasant odors.

Keywords: Pollution; Waste; Beach

Exploring the Potential of Purple Sweet Potato Extract as a Natural Reagent for Copper Ion Detection for Green Chemistry and Sustainable Education

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Abstract:

The utilization of natural reagents for heavy metal detection aligns with the principles of Green Chemistry and Education for Sustainable Development (ESD). In science education, employing purple sweet potato (Ipomoea batatas L. Poir) as a natural reagent offers an opportunity to teach students environmentally friendly practices. This study aims to detect copper ions using purple sweet potato extract as a natural reagent and to explore its potential in science education with a focus on ESD and Green Chemistry. The extract was prepared using water as a solvent in a 1:5 ratio, and tests were conducted on metal ion solutions at a concentration of 100 ppm at pH 4 and pH 7, as well as 10 ppm at pH 7. The research method involved visual observation of color changes as an indicator of copper ion presence. The results indicate that the purple sweet potato extract is selective for copper ions at a concentration of 100 ppm in a pH 7 buffer solution, evidenced by a color change to brown. At a concentration of 10 ppm, the color change was still observable, though with reduced intensity, demonstrating that the extract remains effective in detecting copper ions at low concentrations. Purple sweet potato extract shows potential as an environmentally friendly and effective natural reagent for detecting copper ions, particularly at pH 7. These findings also highlight the high educational value of applying Green Chemistry principles in science education, enhancing students' awareness of sustainability and the use of natural materials in laboratory experiments.

Keywords: Purple Sweet Potato Extract, Copper Ions, Green Chemistry, Natural Reagent, ESD

Designing an Adaptive Dynamic Approach Applied in Text Summarization

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Abstract:

Text summarization is heavily used by LLM's and Gen AI models to condense texts into concise summaries for efficient and faster parsing of prompts. One algorithm commonly used for this is dynamic programming where it has two approaches namely: (1) memoization and (2) tabulation. The existing approaches offer great application in various use-cases but possess three problems: (1) hard-coded context for splitting sentences, (2) nonadaptive base case, and (3) memory intensiveness. This study introduces the third approach, "Adaptive Tabulation" which solves the problem of existing approaches by: (1) segmentation and chunking, (2) using scores and ranks, and (3) selective caching. Adaptive tabulation produced consistent quality summaries between short stories and articles producing a difference of 26.8% in consistency and 3.5% in retaining semantic meaning while also improving memory usage by an average of 32.8%. Future research, broadening the file formats and literature types that adaptive tabulation could process is a great focus.

OMNI Personality Traits as an Alternative Measurement in Enhancing Business and Management Education Practices

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Abstract:

The demands on business and management professionals are becoming increasingly complex, requiring educational institutions to adopt innovative approaches to student assessment. Beyond technical expertise, evaluating personality traits and interpersonal dynamics has become essential. The OMNI Personality Test is introduced as an alternative and comprehensive tool for measuring academic performance among management students. This approach provides a deeper understanding of students' profiles by analyzing five key dimensions of personality traits: Drive, Work Attitude, Positive Emotions, Negative Emotions, and Social Skills. Empirical data were collected from over 1,000 students at the School of Business and Management, Institut Teknologi Bandung, Indonesia. Data were analyzed using Structural Equation Modelling (SEM) and clustering with factorial analysis. Findings reveal strong relationships between these dimensions and academic performance, which can be best explained by two underlying factors. This study highlights the influence of personality traits on students' performance, therefore serving as a data-driven tool for student support and shaping more comprehensive strategies in educational practices.

Optimizing Hyperparameters for Enhanced Satsuma Fruit Disease Detection

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Abstract:

Hyperparameter tuning is an important process for optimizing the performance of machine learning models by fine-tuning parameters such as learning rate, batch size, and the number of epochs. This study systematically explored these parameters using a grid search optimization approach, conducting 120 experiments to enhance model accuracy and minimize loss. Key performance metrics, such as accuracy and loss, were used to evaluate the system's performance. Visualizations like line graph, heatmap, and pair plot gained insights into parameter interactions. The optimal configuration identified consisted of a learning rate of 0.001, a batch size of 32, and 50 epochs, achieving a test accuracy of 100.0% and a test loss 0.0027. These results represented a significant improvement over the approximated baseline configuration, which yielded a test accuracy of 90.4% and a test loss of 0.4164. The findings underscore the importance of moderate parameter values to ensure stable convergence, efficient training, and prevention of overfitting. By achieving substantial gains in accuracy and reductions in loss, the study demonstrates the transformative impact of hyperparameter tuning on model performance. Future research could explore advanced optimization techniques such as Bayesian optimization and genetic algorithms to streamline this process further and validate its scalability for larger datasets and more complex models.

Assessing the Accuracy of Random Forest in Mapping Urban Green Cover in Baguio City Using Sentinel-2 Imagery and Spectral Indices

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Abstract:

Urban green cover plays a pivotal role in sustainable urban development by providing environmental and socio-economic benefits. Accurate mapping of urban green cover is essential for developing urban greening strategies and managing urban green spaces in smart cities. Remote sensing, particularly Sentinel-2 imagery, offers high-resolution multispectral data suitable for vegetation analysis. Machine learning algorithms, such as Random Forest, have proven effective in classifying land cover, including urban green spaces. This research investigates the accuracy of Random Forest in mapping urban green cover in Baguio City, Philippines, utilizing Sentinel-2 imagery and spectral indices. The study utilized spectral indices, such as NDVI, SAVI, NDWI, and NDBI to train and validate the Random Forest model. The performance of the Random Forest classifier is evaluated using standard accuracy assessment metrics, such as overall accuracy, producer's accuracy, user's accuracy, F1-score, and Kappa coefficient. The Random Forest model proved to enhance the classification of urban green cover with 85.71%, 86%, and 86% for the overall accuracy, producer's accuracy for urban green cover, and consumer's accuracy for urban green cover, respectively. The F1-score of 0.92308 and Kappa coefficient of 0.7790927 showed that the Random Forest model accurately classified the urban green cover. By utilizing remote sensing and machine learning techniques, this research seeks to contribute to the development of accurate and up-to-date urban green cover maps. The findings shall provide valuable insights for urban planners and policymakers in Baguio City, enabling them to implement effective strategies for urban greening and sustainable urban development.

Keywords: Random Forest, Urban Green Cover Mapping, SDG 11 Access to Green Space

Effectiveness of Village Fund Policy for BUMDes Development (Case Study of BUMDes Dharma Utama Wonokerto Village, Turi District, Sleman Regency, DI Yogyakarta Province)

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Abstract:

Objectives: This research aims to (1) determine village fund management policies in developing BUMDes, (2) determine the level of effectiveness of village fund management policies for BUMDes development, and (3) determine the supporting and inhibiting factors for the effectiveness of village fund management for BUMDes development.

Method/Analysis: This research uses qualitative methods with a case study approach. Data was collected through interviews, observation and document study.

Findings: The research results show that First, village fund management runs smoothly, reflecting transparent and accountable village financial management. Second, the selection of BUMDes business units is not optimal because it does not take village needs into consideration. Pertashop is considered environmentally friendly, but its turnover is still below target. BUMDes management is also weak, especially since profits are not enough to reinvest. Third, inhibiting factors include less effective communication, human resources are not yet professional, there is no commitment from the Bumdes management to the village government, and work procedures are not adequate. Meanwhile, supporting factors include village government support. It is hoped that this research can contribute to strengthening village fund management policies, especially in developing BUMDes as an effort to improve the welfare of village communities sustainably.

ETCD Search Efficiency Amplified through Advanced Optimization Strategies

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Abstract:

Distributed systems, including ETCD, face inherent intricacies. As a distributed key-value store, ETCD must strike a balance between consistency, availability, and partition tolerance. To address this challenge, ETCD's architecture emphasizes simplicity and clarity, with a user-friendly API. However, beneath the surface, ETCD's implementation involves intricate algorithms and data structures. The use of distributed consensus protocols, such as Raft, adds layers of intricacy. Furthermore, features like transactions, watches, and compaction introduce additional layers of complexity. Despite these complexities, ETCD's design prioritizes high performance and reliability. The modular design helps mitigate complexity, allowing developers to easily comprehend and modify individual components. Ultimately, ETCD's intricate nature is a necessary outcome of its ambitious objectives. By carefully managing intricacies, ETCD provides a reliable and efficient distributed key-value store. Additional factors influencing ETCD's intricacy include distributed locking and leader election protocols, as well as support for multiple storage backends and network protocols. The search operation in ETCD, utilizing a T-tree, involves locating the correct position for the new key-value pair and inserting it into the tree. This operation's time complexity is $O(\log n)$, where n represents the number of keys in the tree, due to the T-tree's self-balancing nature. Similarly, the deletion operation in ETCD, using a T-tree, involves finding and removing the key-value pair. This operation's time complexity is also $O(\log n)$, where n represents the number of keys in the tree, due to the T-tree's self-balancing nature. Our ongoing efforts focus on enhancing the performance of search operation by reducing intricacies through the strategic application of data structures in T-Tree operations.

Exploring Restrained Pitchfork Domination: Theory and Application Perspectives

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Abstract:

Let G=(V,E) be a finite, simple, and undirected graph without isolated vertices. A dominating subset D⊆V(G) is a restrained pitchfork dominating set if $1 \leq |N(u) \cap V-D| \leq 2$ for every u∈D, and every vertex in V-D is adjacent to at least one vertex in V-D. D-1 ⊆ V-D is an inverse restrained pitchfork dominating set if D-1 is a restrained pitchfork dominating set of G. The cardinality of a minimum (inverse) restrained pitchfork dominating set is the (inverse) restrained pitchfork domination number (γ-1 rpf (G), γrpf (G)). Restrained pitchfork domination can be applied on data communication as an efficient mechanism for controlling traffic and, thereby avoiding congestion in ad-hoc networks.

Keywords: Domination, Pitchfork Domination, Restrained Domination, Inverse Domination, Inverse Pitchfork Domination

Organizational Culture and Saudi Arabian Girl's Schools in From the Ashes

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Abstract:

The aim of this research is to analyze and describe the organizational culture within a Saudi Arabian girls' school as represented in the film From the Ashes. From the Ashes is a film depicting Secondary School 2300 for girls in Saudi Arabia, symbolically illustrating the social relationships and rules followed within the institution. Organizational culture in schools reflects the social norms and cultural values present in the country. This study is a descriptive qualitative research project, using primary data from the film and secondary data from scholarly articles, books, and relevant literature. The subject is analyzed through Peirce's semiotic framework, categorizing signs into symbol, object, and interpretant to break down the film's visual and narrative symbols. Organizational culture in the film is examined using Edgar Henry Schein's organizational culture triangle theory, which divides organizational culture into three elements: artifacts, values, and basic assumptions. The results show that the organizational culture in Secondary School 2300 for girls includes artifacts such as uniform rules and school structure, espoused values like religious observance and moral values, and underlying beliefs such as the authority of school leadership. Ultimately, this research contributes to a deeper understanding of the social and religious context in Saudi Arabia, exemplified by strict regulations and a structured educational system.

Keywords: Organizational Culture, Saudi Arabia Girl's School, Film, Semiotics

Sociolinguistic Studies in the *Manuscript of Qaṣīdah Li Aṣ-Ṣibyān* By Kyai Sholeh Tsani

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Abstract:

The *Qaṣīdah Li aṣ-Ṣibyān* manuscript is a work written by one of the Kyai from Gresik, Kyai Sholeh Tsani, in the form of kasidah verses. The aim of this research is to analyze the use of language in the *Qaṣīdah Li aṣ-Ṣibyān* manuscript as a representation of life at that time. In carrying out this analysis, the researcher used a descriptive-analytical method referring to sociolinguistic theories. Sociolinguistic studies in the *Qaṣīdah Li aṣ-Ṣibyān* manuscript provide a deeper understanding of the relationship between language and society in the past. This research can be used as a reference for current sociolinguistic studies and shows the importance of paying attention to social and cultural context in language analysis. The results of this research indicate that the *Qaṣīdah Li aṣ-Ṣibyān* manuscript can be studied from a sociolinguistic perspective to understand the social and cultural context of the time it was written, provide insight into the diversity of languages in society in the past and provide a deeper understanding of the relationship between language and society

Keywords: Manuscript, *Qaṣīdah Li aṣ-Ṣibyān*, Sosiolinguistic