ICAKMPET

2024

4TH ICAKMPET

4th International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology

26th–27th January, 2024

Manila, Philippines

Organized by

World Citi Colleges & WCC Aeronautical and Technological Colleges, Philippines &
Institute For Educational Research and Publication (IFERP)-Philippines Society

IFERP Explore Your Research Journey...

WCC WORLD CITI COLLEGES

WCC AERONAUTICAL & TECHNOLOGICAL COLLEGE

ICAKMPET

Publisher: IFERP Explore

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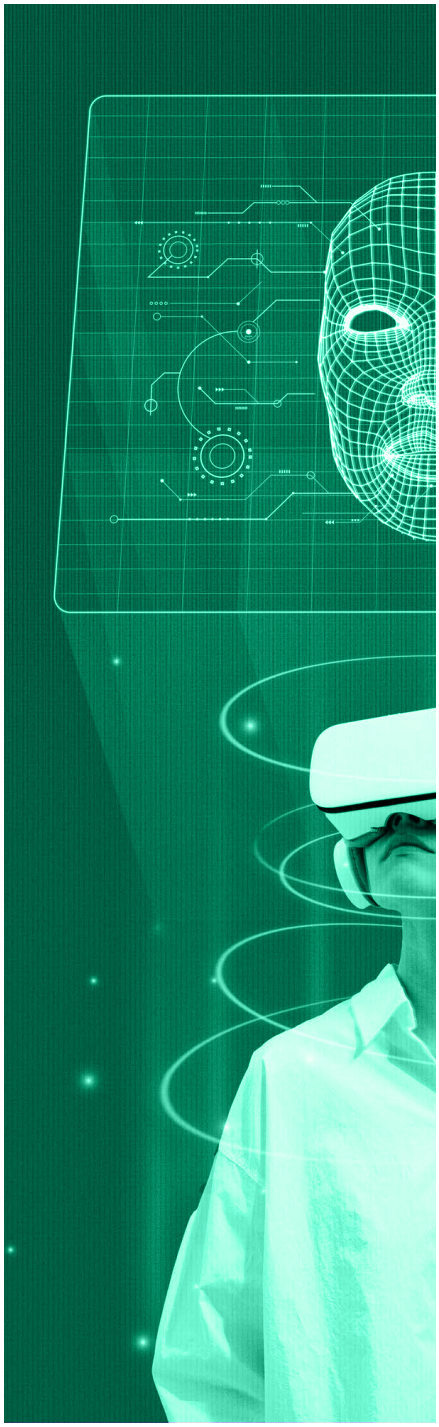

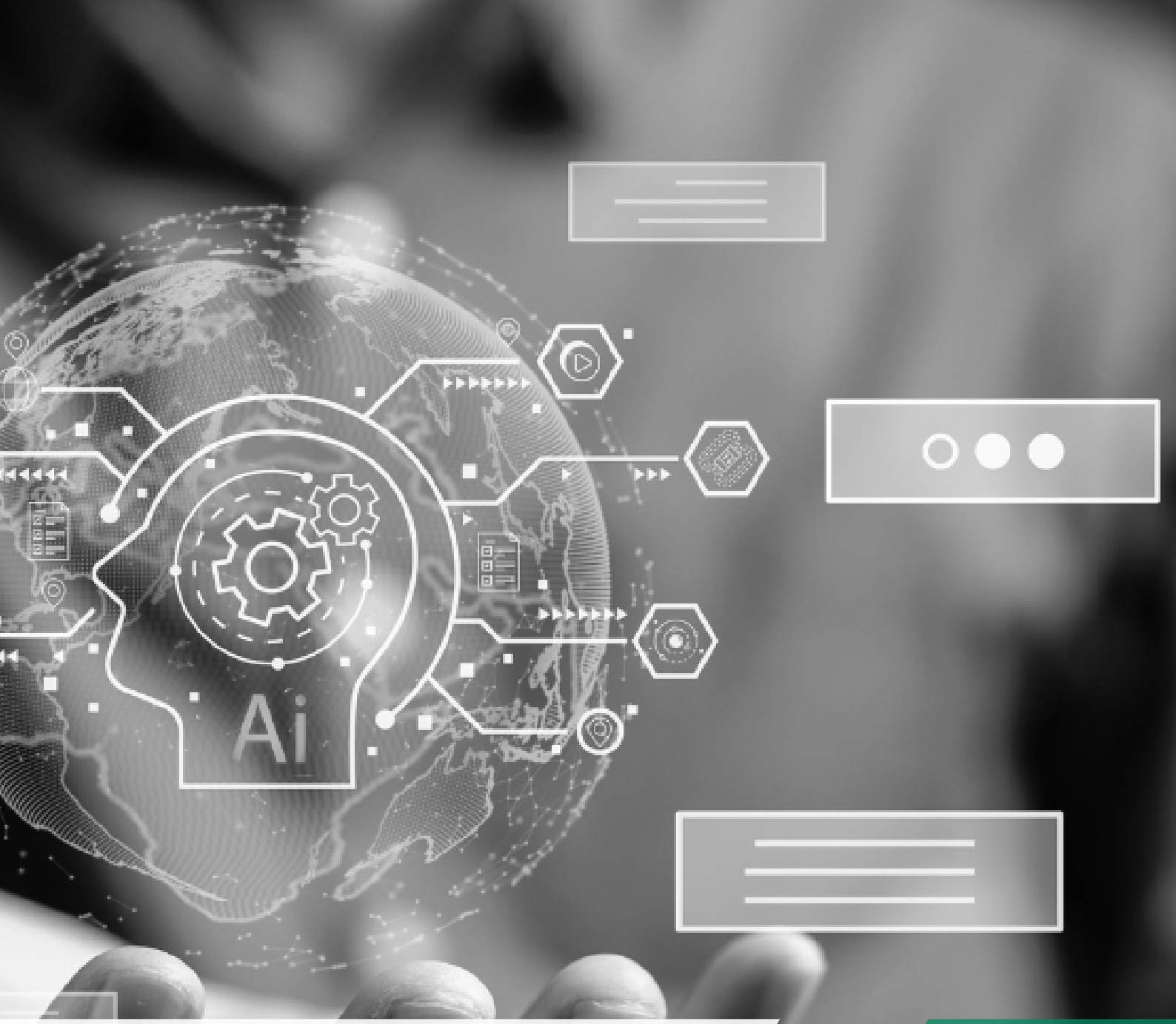

Innovative Solutions for a Sustainable Future in Engineering & Technology

Preface

We are delighted to extend a warm welcome to all participants attending 4th International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology (ICAKMPET-2024) organized by World Citi Colleges & WCC Aeronautical and Technological Colleges, Philippines and Institute For Educational Research and Publication (IFERP) Philippines Society taking place in Manila, Philippines on January 26th-27th, 2024. 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 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 ICAKMPET-2024 contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of 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 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 ICAKMPET-2024.

Since September 2023, the Organizing Committees have received more than 200+ manuscript papers, covering all aspects of ICAKMPET-2024. After review, approximately 90+ papers were selected for inclusion in the proceedings of ICAKMPET-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 4TH ICAKMPET-2024

In the ever-evolving landscape of engineering and technology, the 4th International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology (ICAKMPET-2024), organized by World Citi Colleges & WCC Aeronautical and Technological Colleges, Philippines and Institute For Educational Research and Publication (IFERP) Philippines Society. emerges as a catalyst for innovation, collaboration, and knowledge exchange. Set to take place on January 26th and 27th, 2024, in the vibrant city of Manila, Philippines, ICAKMPET-2024 beckons professionals, researchers, and academics from around the world to participate in a transformative experience.

Multidisciplinary Confluence

ICAKMPET-2024 stands as a melting pot of ideas, where the boundaries between engineering disciplines blur, giving rise to innovative solutions that address global challenges. The conference embraces the multidisciplinary nature of contemporary research, recognizing that true breakthroughs often occur at the intersections of different fields.

This theme encapsulates the conference's focus on fostering innovation and collaboration across diverse disciplines within engineering and technology. It encourages participants to explore and present cutting-edge solutions that contribute to the sustainable development of industries, addressing challenges and advancing knowledge for a better future. The multidisciplinary perspective highlights the interconnectedness of various fields in creating holistic and impactful solutions.

About IFERP

The Institute for Educational Research and Publication (IFERP) is a professional association devoted to the advancement of the fields of engineering, science, and technology through the funding of research activities, propagation of the latest research insights, furtherance of industry trends, and other related ventures. IFERP aims to digitalize this entire process of innovation, collaboration, and knowledge-sharing through the fostering of a unified virtual scientific community worldwide. Everything from networking and joint ventures to learning, research assistance, publication, and more, will be carried out as part of this objective.

IFERP has established robust scientific, academic, and industry networks throughout Asia, the Middle East, and Europe. Some of the countries that IFERP has its presence in, include Iraq, Maldives, Thailand, Malaysia, Singapore, Philippines, Indonesia, Taiwan, Vietnam, UAE, Australia, Japan, Sri Lanka, Nepal, Ghana, and Africa.

Mission & Vision

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."

What We Do

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

We encourage convenient access to academic resources and support for all the aspirants and research scholors in urban and rural areas.

IFERP organizes public education programmes, Workshops, Conferences, Webinars, Seminars, Guest Lectures, Short Term Training Programme, Faculty Development programme in the field of Engineering, Science & Technology.

IFERP is dedicated to inquisitiveness, innovations and recent trends and developments in the field of Engineering & Technology.

IFERP believes in knowledge sharing by collaborating with other Universities, organizations/Associations, to bring a better tomorrow.

About World Citi Colleges (WCC)

World Citi Colleges (WCC) is an educational system with sister institutions and campuses. Envisioned to be centers of excellence in healthcare, business, IT, and education, World Citi Colleges have campuses in Antipolo, Rizal; Guimba, Nueva Ecija; and Quezon City, its mother campus. Also, part of the system is its aviation schools in Caloocan, North Manila and Binalonan, Pangasinan. World Citi Colleges' roots can be traced to the establishment of the Quezon City Medical Center (QCMC) in June 15, 1971. Starting out as a 100-bed capacity hospital, Quezon City Medical Center operated a school offering the Liberal Arts Program in Psychology as its pioneer course in the College of Arts and Sciences in 1978. After the amendment of its articles of incorporation in 1979, QCMC became Quezon City Medical Center and Colleges, Inc. (QCMCC). It was also the same year that it opened its doors to students of nursing offering a two-year preparatory nursing course. The following year, the school offered a four-year course in Nursing after being granted a government recognition by the Minister of Education and Culture. March 1986 marked an important milestone in the school's history with the acquisition of QCMCC by the Guico family.

The new management ushered in a new vision of growth driving changes in the school and hospital becoming World Citi Incorporated now World Citi Group. This became the launchpad of several other colleges within the system. In its commitment to contribute to the advancement of humanity by providing excellent and holistic education, WCI acquired two more schools: Holy Trinity School in Caloocan, now WCC Aeronautical and Technological College; and Westminster College which became WCC-Antipolo Campus. It was also the same year that WCC got an ISO 9001-2000 Certification. The new millennium also saw the rise of WCC by being a key role player in the Hospitality and Management education with the establishment of its School of International Hospitality Management in its Quezon City campus. 2010 also marked the acquisition of E.R. Dizon Colleges in Guimba, Nueva Ecija to become World Citi Colleges-Guimba campus offering a full-range of basic education, tertiary education, and graduate school.

Eventually, under the Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA), WCC secured Level I Formal, Level II 1st RA, and Level II 2nd RA certifications for its Radiologic Technology, Hotel and Restaurant Management, and Nursing programs, respectively. The institution's Nursing program has extended its certification through 2024. PACUCOA is a prestigious private accrediting body that recognizes educational institutions that have met high standards for the operation and implementation of designated academic programs.

To this day, WCC continues to enhance its educational programs and grow its presence through various partnerships and expansion efforts.

MD'S Message, IFERP

Mr. A. Siddth Kumar Chhajer
MD & Founder,
IFERP, Technoarete Groups

On behalf of Institute For Educational Research and Publications (IFERP) & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers.

The goal of the 4th International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology (ICAKMPET-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 Engineering, Technology.

This conference creates solutions in different ways and to share innovative ideas in the field of Engineering, Technology. ICAKMPET-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.

4th International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology (ICAKMPET-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. ICAKMPET-2024 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of Engineering, Technology.

CEO'S Message, IFERP

Mr. Rudra Bhanu Satpathy
CEO & Founder,
IFERP, Technoarete Groups

IFERP is hosting the 4th International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology (ICAKMPET-2024) this year in month of January, 2024. The main objective of ICAKMPET-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.

Welcome Address

Raymond Patrick V. Guico, MM
President, World Citi Colleges &
WCC Aeronautical and Technological College,
Philippines

ICAKMPET Ambassador

Dr. Stephen A. Fadare
Associate Professor, College of Sports,
Physical Education and Recreation
Mindanao State University, Philippines

Keynote Speaker

Dr. Marilyn Morales Obod, LPT, EdD
Head, Research Development and Publication Office,
World Citi Colleges, Dean of the Graduate School, WCC, Quezon City, Philippines

Dr. MARILYN MORALES OBOD, is a Research Consultant in Embracing the Culture of Research-ETCOR Educational Research Center, Philippines and was awarded as Most Outstanding Educator in the Field of Research. Dr. Obod is the current Department Head of the Research Development and Publication Office at World Citi Colleges. She is also the Dean of the MAED Program of the Graduate School in WCC, Guimba Campus. Currently, she is also a member of and a resource speaker for the Center for Professional Advancement and Continuing Education (CPACE), in addition to being an active member of the Review Committee of the International Academic Forum (IAFOR). She also has served on the Research Council and as the Head of the Social Cluster of the Research Development and Innovation Center at Our Lady of Fatima University, in which she additionally chaired the Institutional Ethics Review Committee on one of its campuses. She is also a lecturer in the Graduate School Department of University of Caloocan City and Pacific InterContinental College. Her competence as a statistician, panelist, and adviser is often sought after for undergraduate and graduate student theses and dissertations as she has completed numerous research studies that have been presented at conferences and published in scholarly journals both locally and globally.

Keynote Speaker

Dr. Md. Hasanuzzaman
Associate Professor, Higher Institution Centre of Excellence (HICoE),
UM Power Energy Dedicated Advanced Centre (UMPEDAC), University of Malaysia,
Malaysia

Dr. Md. Hasanuzaman is currently working as Associate Professor at the UM Power Energy Dedicated Advanced Centre, Higher Institution Centre of Excellence (HICoE), University of Malaya, Malaysia. He was listed among the World's Top 2% Scientists by Stanford University & Elsevier for the years 2020, 2021 & 2022. Dr. Hasan served as the Programme Coordinator Master of Renewable Energy, Double Degree Programme with Master of Energy Science, Kyoto University, Japan from April 2012 to September 2020. He earned his PhD and an M. Eng. Sc. from the University of Malaya (UM), Malaysia and a B. Sc. in Mechanical Engineering from Bangladesh University of Engineering and Technology (BUET), Bangladesh. He is a recipient of UM Excellence Award 2012 for his outstanding achievement in his PhD; merit Scholarship from Bangladesh Scholarship Council and Nippon Foundation, Japan in 2003-2004. Dr. Hasan's research interests include Thermal Engineering, Renewable Energy, Solar Thermal, Energy and Buildings, Energy Policy, Energy and Environment, Nanotechnology, Transportation and Electric Vehicles. He is an Associate Editor of the Alexandria Engineering Journal, Elsevier; Guest Editor of Renewable Energy. His 2 books: (1) Technologies for Solar Thermal Energy, 2022 and (2) Energy for Sustainable Development, 2020 published by Elsevier.

Keynote Speaker

Mr. Noel Adalia Dimasacat
Chief Technology Adviser,
GreyWolf Technologies,
Philippines

Mr. Noel Adalia Dimasacat has thirty years of combined experience in IT strategic management, project management, infrastructure, digital transformation, web/mobile application development, and SAP and Oracle ERP/CRM project management. In addition Mr. Noel Adalia Dimasacat have extensive industry experience in BPOs, manufacturing, supply chain, logistics, power generation, travel and transportation, general insurance, and e-commerce.

Before joining AKGC, he worked for six months as an IT consultant and for nearly three years as the Chief Information Officer of Flexo Manufacturing Corporation. Having worked as an IT project manager and programmer for approximately 17 years, he has held executive positions in IT strategy and management at companies such as Aegis PeopleSupport Philippines, Genpact, Systems Standards, Oracle, Eli Lilly Pharmacy, Primover Consultancy Services, Infrontier Inc. (for APAC), and FGU General and Health Care Insurance.

Keynote Speaker

Dr. Saidur Rahman
Distinguished Research Professor, Head-Research Centre for Nano-Materials & Energy Technology (RCNMET), School of Engineering and Technology, Sunway University, Malaysia

Professor Saidur Rahman is a Distinguished Research Professor and Head of the Research Centre for Nano-Materials and Energy Technology at Sunway University. He was Chair Professor in the Center of Research Excellence in Renewable Energy at King Fahd University of Petroleum & Minerals (KFUPM). Prior to joining KFUPM, he worked for 18 years at University of Malaya, a premier research university in Malaysia. Thomson Reuters awarded him as a highly-cited researcher for being among the top 1% of researchers with most cited documents in his research field from 2014 to 2016. Professor Rahman also won the highest accumulation citation award from University of Malaya for four consecutive years from 2011 to 2014. A number of his papers was listed among the top 25 articles in ScienceDirect published by Elsevier Limited. He has published more than 350 journal papers and a majority of them are in top-ranking journals. He has more than 16,000 citations with an h-index of 60 in Google Scholar. To-date, Professor Rahman has supervised more than 65 postgraduate students and has secured and managed more than RM10 million in research grants in Malaysia. He is currently working on improving the performance of solar thermal system with the application of nanofluids and phase change materials.

Keynote Speaker

Mr. Devandran Krishnan
Deputy Vice President,
NanoMalaysia Berhad, Malaysia

A chemist by qualification, Devandran Krishnan attained his bachelor's degree in University Putra Malaysia in 2010. He then progressed into postgraduate studies researching enzyme usage for platform chemical production in renewable reaction medias. In 2012, he worked in University of Minnesota, USA as Research Specialist refining chemical processes for green chemicals production using different spectroscopy approaches. In NanoMalaysia Berhad, as the Deputy Vice President he is now leading Graphene based commercialization efforts under the flagship of GrapheNovation. To date, he have published a few technical papers and co-invented nanotechnology based development patents. He is also scheme development committee member for nanotechnology products verification in Malaysian market.

Keynote Speaker

Shri. Dr. S. K. Varshney
Adviser / Scientist G, Department of Science & Technology,
Government of India, India

Shri Dr. Sanjeev Kumar Varshney has assumed the charge of Head, International Bilateral Cooperation Division (IBCD), Department of Science & Technology (DST) from 1st June onwards replacing Dr Arabinda Mitra. Subsequently, Dr. Varshney being the Head of IBCD has taken over the role of IGSTC Indian Co-Chair. Dr. Varshney has worked as Scientific Officer with Government of India in the Department of Science & Technology since 1990. He has worked as Counsellor (S&T) with Embassy of India in Moscow to facilitate bilateral scientific cooperation between India and Russia during April 2008 – June 2011. He has developed policy documentation to promote international scientific cooperation as well as scientific – industrial cooperation. He is also Involved in financial planning of the group, including preparation of documents and creation of mechanisms for support

Keynote Speaker

Marmelo V. Abante, PhD, DBA, EdD, DBTM, LLD
Dean, College of Information Technology Education, Dean of the Graduate School, WCC, Quezon City Campus, Philippines

Primary Affiliation:

Dean, World Citi Colleges (Education, 4 Year/4 Year + Grad, Philippines)

Secondary Affiliations:

Holy Face of Jesus Lyceum of San Jose Inc. (Corporation, Philippines)

RQAT/NCRQAT, Commission on Higher Education (Government, State, Philippines)

VPAA, College of Saint John Paul II Arts and Sciences (Education, 4 Year/4 Year + Grad, Philippines)

Teaching Experience

- Information Technology Education (Spring 2015)
  - o World Citi Colleges – Programming, Web, Mathematics

Skills & Interests

- Education / Educational Leadership (Intermediate)

Provides leadership in developing, implementing, and maintaining curriculum and programs that respond to community needs, prepare students for success, and which meet the external requirements of external affiliations 2. Works with the appropriate Vice Presidents to ensure consistent application of administrative rules in academic areas.

Honors & Awards

- TESDA IDOL 2013 (07/2013)

An award given to those person who are successful in their field of specialization / a person achiever.

- Outstanding Students of the Year (03/2002)

An award given to a graduate who posses an academic excellence and leadership capabilities

Session Speaker

Dr. Balakrishnan Muniapan
Department of Human Resource Management,
Wawasan Open University, Malaysia

Dr. Balakrishnan Muniapan [BEcons (UKM), CIWT (AUST), MSc (HRM) (Portsmouth, UK), DBA (Philippines), Certified NLP Practitioner (ABNLP, USA), a Certified NLP Coach (ABNLP, USA), HRDF (Malaysia) Certified Trainer (via Exemption) and a Certified Trainer, Speaker and Coach with the John Maxwell Team (USA)]. He is a HRM specialist was conferred the "Best Professor in HRM" award at the World Education Congress, Asia's Education Excellence Award 2014 in Singapore, and at the World HRD Congress 2017 in Mumbai.

He has also been a Visiting Professor in HRM and has served as an external examiner for DBA/PhD thesis in HRM for several universities within Asia, Africa and Europe. In academia, Dr. Bala has published over eighty research papers and articles in several international journals, conference proceedings, and book chapters; and was the recipient of the Best Research Paper award at the 3rd National (Malaysia) HRM Conference in 2006.

He is frequently honored as an invited speaker in HRM (including on Valmiki Ramayana and Vyasa Mahabharata) at numerous national and international conferences, and has presented papers at conferences and delivered talks in several countries within Asia, the Middle East, Australia, South Pacific, Africa, Europe and USA.

As a HRM trainer and consultant, Dr. Balakrishnan Muniapan has vast experience in conducting training and consultancy programs in HRM and has contributed tremendously towards HRM effectiveness for hundreds of organizations within Malaysia, in Asia and Europe. His trainings are interactive, thought provoking, engaging and with practical insights, that helps to transform participant's strategic and critical thinking skills.

Session Speaker

Mr. Arun Kumar Singh

Founding CEO & Accountable Manager,
India One Air, India

Arun Kumar Singh is the Founding CEO and Accountable manager of the regional airline IndiaOne Air. Under his leadership, the airline became the first and only airline in the history of Indian civil aviation to obtain AOC (Air Operator Certificate) with a single engine aircraft. He is also a part of the "Airline Advisory Group" (group of airline CEOs, constituted by Honorable Civil Aviation Minister to advice MoCA about Civil Aviation Policy Reforms in India).

Session Speaker

John Mark S. Borbon, LPT
Head, Quality Assurance and Technology Office &
Coordinator, Community Extension and Services Office WCC,
QC Campus, Philippines

John Mark S. Borbon graduated his BSEd major in Biological Science at Capiz State University-Pontevedra and he received merits such as Outstanding Student Researcher and Student Teacher. He was recognized as one of the Ten Outstanding Students of Capiz 2016 and a recipient of Youth Leadership Excellence Award by the Junior Chamber International. He worked as Research Assistant on a collaborative project among UP- Visayas and other SUCs in Western Visayas funded by the DENR. He had paper presentations in national and international countries such as South Korea and European countries. He was a former Research Associate of World Citi Colleges- Quezon City and currently the Community Extension Coordinator of the same institution. He is pursuing his Master of Arts in Education major General Science at the University of the Philippines- Diliman. In 2019, he was awarded as one of Most Outstanding Researchers of the Association of Higher Education Multidisciplinary Researchers, Inc.

Session Speaker

Mr. John Booth, MBCS, CDCAP, CDCSP
Managing Director
Carbon3IT Ltd, United Kingdom

Mr. John Booth is a well-known figure in EU data centre circles, primarily for his role as reviewer for the EU Code of Conduct for Data Centres (Energy Efficiency) (EUCOC) programme and his work with the Certified Energy Efficiency Data Centre Award (CEEDA) & Data Centre Alliance Certification (which assesses data centres to a subset of the EUCOC best practices and EN 50600 respectively.) He is also the chair of the Data Centre Alliance's (DCA) Energy Efficiency & member of the Sustainability steering group, shaping the DCA's policy on these topics as well as providing support to the DCA in other steering groups and the Alliance's wider activities.He is the Vice Chair of the British Computer Society, Chartered Institute for IT, Green IT specialist group.He is also the Chair of the BSI TCT7/3 committee that works upon the EN50600 Data Centres Design and Build Standards and ISO/IEC 30134 series of Data Centre KPI's (PUE ETC).

John also sits on the Advisory Board of the Sustainable Digital Infrastructure Alliance and on the Infrastructure Masons Sustainability Committee. He runs his own Green IT consultancy, Carbon3IT Ltd, providing support to organisations that are preparing to adopt various data centre standards including the more general standards such as Quality, Environment, Business Continuity, Information Security, and Energy Management. They also provide specialist niche consultancy in the field of Green IT including Data Centre Energy Efficiency & Sustainability Carbon3IT Ltd is currently working on a number of data centre carbon footprinting projects for 2 major clients.

John is recently worked with the TIC Council developing audit criteria for the EU Taxonomy regulations.John is a lead auditor for ISO50001: (2011/2018) Energy Management Systems and ISO 22301 Business Continuity Management Systems, is a Certified Data Centre Audit Professional CDCAP TM (Recert 2021), a Certified Data Centre Sustainability Professional CDCSP™ (2021) and is an EMA ESOS registered Assessor.He is also the Technical Director of the National Data Centre Academy, (www.nationaldatacentre.academy) which hopes to provide practical technical training to the data centre community in the near futur

Session Speaker

Dr. Sailesh Iyer

Dean, Department of CSE/IT, Rai School of Engineering, Rai University &
President RU IIC and RU Nodal officer -GSIRF, India

Dr. Sailesh Iyer has a Ph.D. (Computer Science) and currently serving as a Professor with Rai University, Ahmedabad. He has more than 22 years of experience in Academics, Industry and Corporate Training out of which 18 years are in core Academics. He is involved as an Editor for various book projects with River Publishers, IGI Global and Bentham Science. A hardcore Academician and Administrator, he has excelled in Corporate Training, Delivered Expert Talk in various AICTE sponsored STTP's, FDP, Reputed Universities, Government organized Workshops, Orientation and Refresher Courses organized by HRDC, Gujarat University. Research Contribution include reputed Publications, Track Chair at ICDLAIR 2020 (Springer Italy), icSoftComp 2020, IEMIS 2020 (Springer), ICRITO 2020 (IEEE) and TPC Member of various reputed International and National Conferences, Reviewer of International Journals like Multimedia Tools and Applications (Springer), International Journal of Big Data Analytics in Healthcare (IGI Global), Journal of Renewable Energy and Environment and Editor in various Journals. Expert Talk on Research based topics in various Universities and Conferences in addition to guiding Research Scholars as Supervisor. He has also been invited as a Judge for various events, Examiner for Reputed Universities, is a Computer Society of India Lifetime Member and also serving as Managing Committee (MC) Member, CSI Ahmedabad Chapter from 2018-2020. Research interest areas include Computer Vision and Image Processing, Cyber Security, Data Mining and Analytics, Artificial Intelligence, Machine Learning.

Session Speaker

Dr. Mostafa Ewees

Stanford Professor, Organizational Behavior &
Psycho-analysis, Stanford University at California &
Founder & Educational superintendent at Pathfinder Training company, USA

Professional Experience:

Academic Positions: Associate Professor, University of Texas at Austin, researcher methodology at Stanford University in California & visiting Associate Professor, American University in Cairo Counseling and Clinical Psychologist at Rofaida Medical Park 6th of October, Egypt.

Research:

Research interests have focused on social conflict, power, and ethics in medical organizations, behavioral decision making, and the development of effective communication, and behavioral skills. Analyzing psychological and sociological factors for the clients (i.e. patients).

Books and Presentations:

1. Stanford University at California, Teaching Methodology by Mostafa Ewees
2. Principles of Sociology (Analyzing clinical sociology), focusing on the medical field
3. Educational Psychology (Define and differentiate important terms in Educational Psychology)
4. Communication Psychology (Psychology in the media)
5. Effective Classroom Strategies
6. Defining and Analyzing What is Clinical Psychology

ACHIEVEMENTS: (Memberships & Boards)

- Staff Development Workshop-Middle East Association of National Schools (MEANS) 2001-2002-2003-2004-2005-2006-2007-2008, Cairo, Egypt
- Member at American Federation of Teachers (Washington, DC 2001)
- Member at Southern Teachers Agency (STA) (Virginia, USA 2004)
- Member at Great schools staff (Oregon, USA 2004)

Interests and Activities:

Reading, literature, sports, computers, working with children and students in many different ways; whether tutoring, teaching, coaching or babysitting, children are inspiring individuals and enjoy international living and travel.

Session Speaker

Dr . Saifullah Bullo
Director of Research (ORIC) and Chairperson,
Begum Nusrat Bhutto Women University, Pakistan

Dr. Saifullah Bullo is an Associate Professor and also serving as Director ORIC at The Begum Nusrat Bhutto Women University, Sukkur Sindh Pakistan. Dr. Bullo has more than 13 years of Research and Teaching experience. He has published more than 38 research publications with cumulative impact factor of 125, he also has 20 conference proceedings publications etc. He has been awarded one gold medal and two silver medals in international Research Exhibitions. He also has been awarded Research grants/funding from different international research funding agencies etc.

Awards

1. European Respiratory Society (ERS) Short-Term Research Training Fellowship 2016 (STRTF 2016) (November 2016 -March 2017).

2. Fully funded Scholarship for PhD studies under "Commonwealth Scholarship and Fellowship Plan (CSFP)" by Malaysian Higher Education Commission (MOHE) for three years 2011-2014.

3. Gold MEDAL AWARD For the Best Research at The Invention, Research and Innovation (PRPI) Exhibition, Held in University Putra Malaysia on 15th-16th November 2016.

4. Silver Medal Award in the 3rd International, Innovation, Design and Articulation IDeA 2016, University Technology Mara (UiTM) Perlis. 27th-29th April 2016.

5. Silver medal award in for the best research at the Invention, Res: and Innovation (PRPI) 2014 exhibition, held in University Putra Malaysia on 30th September to 1st October 2014.

Exclusive Event

Exclusive Panel Discussion on

"The Secrets of Successful Publishing: Strategies for Researchers to Transform Findings into Compelling Articles"

Dr. Stephen Ayoade Fadare

Associate Professor
College of Sports, Physical Education and Recreation
Mindanao State University (Main) Marawi Marawi, Philippines

Dr. Ace Lagman

Senior Director
College of Computer Studies and Multimedia Arts
Far Eastern University Institute of Technology
Philippines

Dr. Francis F. balahadia

Chairperson for Innovation Technology Service Office
Program Co ordinator
Master of Science in Information Technology
Laguna State Polytechnic University

Dr. Warren A. Ramos

OIC, Assistant Schools Division Superintendent
Caloocan City, Philippines

Exclusive Event

Exclusive Panel Discussion on

"The Secrets of Successful Publishing: Strategies for Researchers to Transform Findings into Compelling Articles"

Dr. Edison Mojica

Department Chairperson,
Electrical Engineering Department,
Polytechnic University of the Philippines Manila , Philippines

Moderator

Dr. Cherie Bautista-Apolinario

Professional Lecturer
Masters and Doctorate Program,Pacific Intercontinental College
Master Teacher II
Silanganan Elementary School North II
District Coordinator in Research

Session Chairs

Marmelo V. Abante, PhD, DBA, EdD, DBTM, LLD
Dean, College of Information Technology Education,
Dean of the Graduate School, WCC, Quezon City Campus,
Philippines

Ms. Engr. Siddartha B. Valle
Assistant Professor, College of Engineering
University of Batangas, Batangas City
Philippines

Mrs. Engr. Marizen Contreras
Associate Professor, College of Engineering
University of Batangas, Batangas City
Philippines

Dr. Dennis B. Gonzales
Professor, College of Engineering
University of the East Caloocan,
Philippines

Student Ambassadors

Chenee Kristelle Abunda
School of International Hospitality Management
World Citi Colleges,
Quezon Citi Campus, Philippines

Samantha Donaire
School of International Hospitality Management
World Citi Colleges,
Quezon Citi Campus, Philippines

Committee Members

ORGANIZING COMMITTEE

Conference Chair

Marilyn Morales Obod, LPT, EdD
Dean of the Graduate School, Head, Research Development and Publication Office, World Citi Colleges Quezon City, Philippines

Conference Co-Chair

Runato Armenia Basanes, PhD
Dean, College of Education, Executive Director, Student Affairs and Services Division University of Antique, Philippines

STEERING COMMITTEE

Darwin G. Quintos, DBA, PhDc
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Ava: AR-Enabled Basic Computer Peripherals Detection and Troubleshooting Learning App for San Jose National High School

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Abstract

In the digital era, the integration of technology in education has become imperative, yet the accessibility and understanding of basic computer peripherals remain a challenge for many students. San Jose National High School (SJNHS) faces similar hurdles in providing comprehensive education on computer hardware. To address this issue, a novel solution, "Ava," an Augmented Reality (AR)-enabled learning application, has been designed and implemented. The primary objective of Ava is to facilitate the learning process of identifying, understanding, and troubleshooting basic computer peripherals among students. This ongoing research aims to evaluate the efficacy of Ava in enhancing the comprehension and practical skills related to computer hardware. Leveraging AR technology, Ava provides an interactive, immersive learning environment where students can visually explore and interact with virtual computer peripherals. The research methodology encompasses a mixed-methods approach, combining quantitative and qualitative analyses. Quantitative data will be collected through pre- and post-intervention assessments, measuring students' knowledge and skill progression. Concurrently, qualitative data will be gathered through interviews and observations to understand the perceptions, experiences, and challenges encountered by both students and educators using Ava. The research will also focus on the integration of Ava within the existing curriculum of SJNHS. By incorporating Ava into the educational framework, the aim is to create a seamless learning experience that supplements traditional teaching methods with interactive, hands-on learning. The research will investigate the app's impact on the learning outcomes and engagement levels of students. Preliminary observations indicate a positive reception among students towards Ava's user interface and its ability to simulate real-world scenarios effectively. Additionally, educators have noted an increased enthusiasm among students and a notable improvement in their understanding of computer peripherals. The findings of this ongoing research will contribute to the discourse on integrating AR technology in education, specifically in the domain of computer hardware learning. Ultimately, the aim is to provide a scalable solution that can be replicated in educational institutions to enhance computer literacy among students.

Keywords

Augmented Reality, Computer Peripherals, Education, Learning App, AR Technology, Student Engagement, Skill Development, Curriculum Integration

FurniView: Augmented Reality App for Interactive Furniture Placement

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Abstract

The fusion of augmented reality (AR) and interior design has revolutionized the way individuals envision and place furniture within their living spaces. "FurniView" is an innovative AR application designed to facilitate interactive furniture placement, enabling users to virtually position and visualize various furniture pieces in their homes. This ongoing research aims to explore the effectiveness and user experience of FurniView in the context of interior design and space planning. The primary objective of FurniView is to provide a user-friendly platform that allows individuals to virtually 'try out' furniture before making a purchase, thereby enhancing the decision-making process and reducing potential buyer's remorse. This research investigates the impact of FurniView on user engagement, satisfaction, and decision-making in the context of home furnishing. Utilizing a mixed-methods research approach, quantitative data will be collected through user feedback, surveys, and analytical metrics within the app. These metrics will focus on user interaction patterns, time spent using the app, and the frequency of furniture selections and modifications. Qualitative data will be gathered through user interviews and observations, delving into the user experience, challenges encountered, and perceived value of FurniView in the furniture selection process. The research will also examine the behavioral changes among users resulting from the integration of FurniView in their furniture purchasing journey. Understanding the influence of this AR application on the decision-making process will be crucial in assessing its impact on user satisfaction and confidence in furniture selections. Preliminary observations suggest a positive response to FurniView, with users finding the application intuitive and helpful in visualizing furniture within their spaces. Users express a higher confidence level in their furniture choices and an increased sense of satisfaction, potentially reducing returns and enhancing the overall shopping experience. The findings of this ongoing research are expected to contribute valuable insights into the adoption and impact of AR technology in the realm of interior design and furniture retail. The ultimate goal is to provide a user- centered solution that enhances the furniture shopping experience and empowers individuals to make informed and satisfactory furniture selections for their homes.

Keywords

Augmented Reality, Interior Design, Furniture Placement, User Experience, Decision-making, User Engagement, Retail, Home Furnishing, AR Technology, User Satisfaction

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Air-Pulsed Cryotherapy: A State-of-the-Art Review

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Abstract

Air-based cryotherapy is a therapeutic technique of using cold air in the form of liquid nitrogen or refrigerated air to promote tissue repair consequently recovering pre-damage functions of the body following intense exercise protocols. Air-pulsed cryotherapy is a novel application of cryotherapy using the air medium and this is administered to target local injuries through repeated exposure to cold air. This style of application shows more potential in efficiency as it manifests a direct manner of administration on a target site. However, published scientific evidence supporting the use of air-pulsed cryotherapy has been stagnant for the past ten years. Despite this, the technique continues to be practiced in the field. The purpose of this review is to provide a synthesis of current evidence, including the areas where evidence should be seen and there is a lack thereof, to determine how best to use and develop the technique. This review discusses air-based cryotherapy, its development, benefits, and disadvantages, on exercise-induced muscle damage. From the presented discussion, it is recommended to further investigate the potential of air-based cryotherapy in treating exercise-induced muscle damage. Additionally, it is recommended to explore combining mediums to respond better to skin permeability for optima cold temperature absorption to facilitate better muscle tissue recovery and function capacity.

Keywords

Air-pulsed cryotherapy, physical therapy, review, state-of-the-art

Impact of Related Learning Experiences (RLEs) to BSBA Marketing Management Alumni of a Private Institution in Antipolo City: Input to Employability Skills Development

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Abstract

This paper studied the impact of Related Learning Experiences (RLEs) on the BSBA Marketing Management alumni. The study utilized an explanatory sequential design wherein a structured questionnaire was distributed to twenty-eight (28) BSBA Marketing Management alumni from 2021 to 2023 from the concerned private HEI, and a structured interview was also conducted to further verify the result. The employability skills used in this study, as criteria, were based on a study by Ismail and Mohammed (2015). Based on the results, the surveyed individuals perceived RLE activities to be impactful to their employability skills and have helped them in securing a job. However, further developments were suggested by the surveyed alumni. The study presents implications for the Department of Business Administration and the institution as a whole.

Keywords

Employability skills, Experiential learning, Tertiary education, Related Learning Experience

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The Total CO_2 Emission Efficiency of "WE R GREEN" Program Implementation at ADHI Construction Project

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Abstract

As the leading state-owned construction company in Indonesia, PT Adhi Karya (Persero) Tbk (ADHI) has taken certain steps to address sustainability issues, especially when it comes to improving the environmental quality of infrastructure projects. "WE R GREEN" is an environmental program that emphasizes water conservation (W), energy efficiency (E), waste management (R, which stands for remove, reduce, reuse, and recycle), and tree planting activity (GREEN). This study used a construction project which is Depok's Faculty of Administrative Sciences building, University of Indonesia, as the sample, where every action has a close relationship with the environment. The purpose of this study is to determine the CO_2 efficiency of some project activities following the implementation of the "WE R GREEN" initiatives. The data consists of water consumption, project office building usage, electricity consumption, solid waste production, and planted tree specification. According to the data, total CO_2 emissions were 110,62 tons CO_2e year prior to program implementation, and the emission has dropped to 73,59 tons CO_2e annually following the initiatives. This concludes that the total of 37,03 tons CO_2e per year, or 33%, are reduced. Assuming the same number of people and project activities throughout all 109 ADHI projects to put the program into practice. The estimated annual CO_2 output would thus decrease 4.036,06 tons CO_2e.

Keywords

CO_2 Emission Efficiency, Energy Efficiency, Green Construction Project Program, Water Conservation

A Critical Appraisal: Elementary School Coding Education Effectiveness with Scratch in Alignment with Cognitive Development, Analyzed through Piagetian Lens

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Abstract

The digitalization has revolutionized the education sector by integrating technology and bringing about significant changes. Computational Thinking (CT), an indispensable skill for the 21st century, has now become an integral part of school curricula in several countries worldwide. Focused on enhancing CT skills, programming education, especially through Scratch, Scratch simplifies programming concepts, making it suitable for elementary school children aged 7 to 11 years. Aligned with Piaget's concrete operational stage, emphasizing organized and rational thinking. Hence, this study aims to delve deeper into how Scratch programming education can meet the cognitive developmental needs of children in this phase. The research methodology used is a literature review, employing data from textbooks, journals, scholarly articles, and literature reviews that contain concepts central to the research focus. The data analysis involves collecting relevant research findings, organizing, and systematically recording information. The results indicate that Scratch not only provides a platform for learning programming but also supports the development of concrete operational cognitive skills taught in Piaget's theory. Through creativity in designing Scratch projects, children can apply and strengthen their understanding of concepts such as seriation, classification, reversibility, conservation, and the elimination of egocentrism. But, it's essential to consider an approach tailored to the developmental characteristics of children when designing programming education at the elementary level. This study is expected to provide concise guidance for educators and policymakers in formulating programming education that optimally fosters cognitive development in elementary school children.

Keywords

Coding Education, Scratch, Cognitive Development, Concrete Operational Stage, Elementary School, Piagetian Lens

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Timbang App: An Operation Timbang Monitoring System

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Abstract

Malnutrition is one of the most severe issues in the Philippines. It is one of the leading causes of a growing number of diseases and infections, many of which result in infant deaths, especially during the first five years of life. This project aims to create an IT solution that includes a web application and mobile application that calculates Operation Timbang (OPT), manage OPT data and generate reports. This mobile application is designed to help mother leaders collect, calculate, and report data from each barangay of San Miguel, Bulacan. Furthermore, the web application was developed for the Rural Health Unit (RHU) to provide SMS notifications about the RHU programs to the San Miguel residents.

The waterfall model was used for the project development method. The researchers used survey questionnaires based on ISO 9126 Quality Model to determine if the developed OPT provided necessary system functions. A series of testing to evaluate the system using unit testing, compatibility testing, stress testing, system testing and integration testing. The series of tests shows that the OPT system can manage many devices simultaneously. Moreover, it is compatible with android devices and is compatible with Google Chrome, Microsoft Edge, and Mozilla Firefox. The integration test shows that the data received in both mobile and web applications aligns with each other. The survey results show that the system functionality and accuracy are 100% acceptable to the respondents for both mobile and web application. However, the usability of web and mobile applications varies. Showing 99.5% for mobile application and 99.34% for web application. These results imply that the web application can be effectively used to organize, store and retrieve OPT data. And the mobile application can be effectively used to collect, calculate, report data, and provide SMS notifications to parents about nutrition programs.

Keywords

Timbang App, Malnutrition, Philippines, Operation Timbang (OPT), Rural Health Unit (RHU)

The Digital Age of Online Video Platforms: Youtube Advertisements' Impact on Brand Awareness, Brand Image and Purchase Intention among Generation Z

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Abstract

In a YouTube profiling study done by Kantar TNS (2017), results yielded that 87% of Filipino internet users watch online video content and that the top-of-mind social media platform they prefer to watch online videos is YouTube. Filipino companies have tapped this platform to promote their brands through placing their advertisements in selected content and videos. To date, there is still little understanding of whether YouTube advertisements really have a role in increasing brand awareness, image, and even purchase intention for Filipino brands. This study investigated the different variables that have an impact on the attitudes of Generation Z towards non-skippable YouTube advertisements. The researcher used a structured survey questionnaire using the measurements and constructs from different scholars. The researcher gathered data from 470 respondents studying in three World Citi Colleges campuses in Antipolo, Quezon City, and Guimba and interpreted the data using Partial Least Squares-Structural Equation Modelling.

Keywords

Online Video Platforms, Youtube, Brand, Generation Z

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Control Tower and Pilot Communication Simulation System (CTAPSS) for Air Traffic Control in the Avionics Department

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Abstract

The research project developed a Control Tower and Pilot Communication Simulation System (CTAPSS) for Air Traffic Control training in the Avionics Department at WCC Aeronautical and Technological College. The system aims to provide realistic communication simulation between pilots and air traffic controllers during different flight operations. It offers hands-on training to improve students' knowledge of communication procedures, including Morse code practice. The project's objectives included determining hardware and software requirements, designing a speech-to-text transmission application, and testing the simulation console for usability, functionality, and reliability. The CTAPSS console allows voice recognition and Morse code input options and provides scenarios for decision-making and critical thinking practice. The development followed the Waterfall Model and used Visual Studio with vb.net for programming. Testing and surveys were conducted with Avionics Technology students and instructors for evaluation. The project's scope is limited to the Avionics Department of WCC Aeronautical and Technological College. The system covers communication stages during pre-flight, taxi, flight, and landing, allowing users to choose between voice and Morse code input. Overall, the system received positive feedback, with users acknowledging its performance and usability. The CTAPSS effectively enhances communication skills for student pilots and simulates various flight scenarios for risk analysis and decision-making improvement. The results of the system evaluations indicated strong performance in functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. The mean ratings for each criterion ranged from 4.61 to 4.74 on a scale of 1 to 5, indicating that the system met its specified tasks and goals to a very high extent. During usability testing, users, especially student pilots, provided positive feedback on the system's functionality, particularly in terms of pronunciation and phraseology practice. The CTAPSS effectively facilitated communication between pilots and air traffic controllers, allowing users to simulate different flight scenarios and analyze potential risks in real-time. This practical training contributed to improving decision-making skills and response time. The CTAPSS is seen as a promising tool to enhance air traffic control training in the Avionics Department, with potential contributions to aviation industry safety and efficiency. Future recommendations include adding a video card for an enhanced simulation experience, incorporating separate keys for Morse code transmission, and exploring better speech-to-text applications for faster input transmission.

Keywords

Radio Communication, Air Traffic Control, Communication Simulation, Simulation Training

Investigation of Ammonia Co-firing Effects on Combustion Equipment Performance in an Existing PLN 660 MW Coal-fired Power Plant

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Abstract

In Indonesia's electricity system, coal-fired power plant (CFPP) have a vital role in meeting the primary needs of the community. On the other hand, the energy transition agenda forces PLN (State Electricity Company) to review the options available to decarbonize while maintaining the operation of the CFPP to continue operating until the end of its life. One of the hottest and newest programs in Indonesia is ammonia co-firing. Ammonia, a non-carbon fuel, has the opportunity to partially replace coal for combustion in boilers. Its application to existing boilers will certainly shift the existing operating profile, especially on the combustion side. The investigation shows that co-firing ammonia will affect the boiler performance, combustion profile and some operating equipment. The boiler efficiency becomes slightly lower with the presence of ammonia. Based on the combustion simulation results, the combustion temperature may become higher due to the additional fuel heat injected to maintain the power plant output. Some equipment, such as the capability of the draft fan, should be rechecked as this application may increase its working level. Nevertheless, initiation of ammonia co-firing is a good and interesting option to conduct decarbonization in the existing power plant.

Keywords

Ammonia, Indonesia's Electricity System, Coal-Fired Power Plant (CFPP), PLN (State Electricity Company)

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Class Scheduling System (CSS) For WCC-ATC Avionics Department

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Abstract

The manual process of preparing class schedules in educational institutions can be time-consuming and prone to errors. This research project focuses on developing automated class scheduling system specifically for the Avionics Technology Department at WCC Aeronautical & Technological College, Binalonan Campus. The aim is to develop a system that streamlines the scheduling process, improves efficiency, and reduces human errors. The project utilizes a system design methodology, employing an iterative waterfall approach to guide the development process, randomize control trial, and distribute a questionnaire among the groups of respondents. The system is designed to be accessible through offline or land-based networks, provided users have the necessary gadgets. Testing and evaluation of the system was conducted within the campus premises. To assess the system's effectiveness, a survey questionnaire was prepared and presented to end-users, including the program head and teachers from various departments. The questionnaire focused on evaluating the system's functionality and usability. Data collected from the respondents were analyzed using frequency distribution and percentage calculations. The Class Scheduling System in the Avionics Technology Department streamlines class scheduling by automatically generating schedules and allowing users to customize and reshuffle them. Users can download the generated schedules as Excel files. The system proved efficient and user-friendly, providing flexibility in filtering schedules and personalizing the interface. The researchers recommend using their study as a reference for future system development, suggesting improvements such as incorporating room appointments and adding conflict detection in schedules. These enhancements would further enhance the system's functionality and effectiveness in managing class schedules.

Keywords

Class Scheduling System (CSS)

iHANDA: A Secure framework for Hazard Awareness in National Disaster Action

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Abstract

Among several applications developed for disaster risk reduction to address hazard problems, there are limited studies that decentralize databases in local communities. Those that integrate blockchain technologies have been demonstrated to be more secure than those based on traditional encryption algorithms. We compare and evaluate four consensus algorithms that use Proof of Work (PoW), Proof of Stake (PoS), Proof of Importance (PoI), and Proof of Authority (PoA). Our experiments show that the PoA-based consensus algorithm outperformed the PoW, PoS, and PoI-based consensus algorithms, achieving faster, more efficient, and lower computational power than the three consensus algorithms and being suitable for private and permissioned networks. In this study, the iHanda framework is presented to help local government units (LGUs) build a secure database for residents to avail of early warnings and/or services.

Keywords

iHANDA, National Disaster Action, Proof of Work (PoW), Proof of Stake (PoS), Proof of Importance (PoI), and Proof of Authority (PoA)

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The Effects of Different VR Designs for An Instructional Lesson on Students Performance and Motivation: A Design-Based Research

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Abstract

The purpose of this study is to define design guidelines for instructional virtual reality (VR) and examine how three different VR designs affect students' motivation and performance. By filling in the gaps with empirical data on different VR designs, the study aims to find the best method for incorporating VR into learning environments. Using a design-based research methodology, the study aims to provide recommendations for the best virtual reality learning environments. These recommendations were developed by the researchers using a combination of extensive literature analysis and focus group discussions.

Pre-posttests measuring performance and the modified Reduced Instructional Materials Motivation Survey (RIMMS) measuring motivation were used to evaluate the effects of various VR designs. 29 students were included in the sample, and they were split up into three instructional VR groups. One of the main results of the study is the development of two instruments to assess virtual reality instruction. The findings revealed no significant differences among the three student groups in terms of the performance variable. However, notable differences were observed in the motivation variable. These newly developed instruments hold potential for global use in both the development and evaluation of instructional VR experiences. The findings of this study highlight that although students may learn identically from a variety of VR designs, their motivation levels differ depending on the design. This study emphasizes the significance of taking motivational factors into account when implementing virtual reality (VR) in educational contexts, acknowledging the role that motivation plays in fostering long-term and enhanced learning experiences.

Keywords

VR Designs, Virtual Reality (VR), Reduced Instructional Materials Motivation Survey (RIMMS)

Competitiveness of Tourism Services: Basis for Sustainable Development Program

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Abstract

This study assessed the Competitiveness of Tourism Services: Basis for Sustainable Development Program. This study sought answers to the following questions: How do the respondents assess the Competitiveness of the Tourism Services in the City of Caloocan in terms of: Accommodation, Travel, Food, Cultural Heritage/Events/Attractions and Tourist Facilities Services?; Is there a significant difference of the three (3) groups of respondents on the competitiveness of tourism services in the City of Caloocan based on the above-mentioned variables along with the Challenges Encountered by the three (3) groups of respondents on the Tourism Services?; What sustainable tourism program may be proposed based on the findings of the study.

This study engaged a quantitative and descriptive design. The assessment is based on three groups the respondents: Travellers, Government Offices and Tourism Enterprises. There was a total of two hundred fifty eight (258) respondents in the study where, eighty three (83) respondents are Travelers namely the domestic, foreign and locals; ninety (90) respondents from Tourism Enterprises namely business and companies registered in the Cultural Affairs and Tourism Office (CATO); and eighty (85) respondents from Government Offices which are the Cultural Affairs and Tourism Office (CATO), Caloocan City Public Library and Caloocan City Band.

Purposive sampling was used to select the respondents on the study.

The following statistical tools are used to interpret the collected data such as Weighted mean, percentage, and to interpret significance and test the null hypothesis,

Based on the significant findings, Kruskal Wallis One-way ANOVA was used the study concluded the following; the results of hypothesis testing on the significant difference in the assessment of the three groups of respondents, specifically the tourism enterprises, government office personnel and travellers. The computed values as to "travel services" (2.484), "cultural heritage/ events and attractions services" (5.904), "tourist facilities services" (2.355) are lesser than the critical value of 5.991. Thus, the null hypothesis is accepted. However, the null hypothesis is rejected on the following because the computed values exceeded its critical value of 5.991: "accommodation services (10.141) and "food services" (15.365). The significant difference is caused by a very high numerical rating assessment of the government office personnel on accommodation total weighted mean of 2.92 and food services with the weighted mean of 3.20. On the challenges encountered the three groups of respondents on the tourism services are sometimes encountered with an overall weighted mean of 2.61 the Tourism Enterprises weighted mean is 2.64, Government Offices with the weighted mean of 2.57 and for the travellers the weighted mean is 2.63.

Based on the significant findings and conclusions of the study, the following recommendations are offered: The following recommendations are presented in the light of the conclusions: Accommodation Services more hotels, motels and lodging houses/inns should be put up to caution increase in the influx of travellers. All Tourism Enterprises into accommodation services has to subject their facilities, amenities and operations to the accreditation process as sanctioned by Tourism Act to 2009 to ensure application of prescribed standards and satisfaction of the needs and expectations of the consumers. Food Services can be improved with focus on offering indigenous and exotic foods. The challenge is to develop or enhance local foods. Professional and training schools can help the City by way of preferred and most sought after indigenous food researchers which can be later marketed as Caloocan City's best Travel Services pick an area in Caloocan for travel services that you can and want to be a specialist in. With everyone able to do basic travel agent tasks such as searching the Internet for activities and accommodation, travel agents become useful by offering packages that are harder for the average person to know about, find and put together. Focus on just a few destinations or types of trips, and be an expert on those. Cultural/ Events and Attractions in place of natural attractions which the City lacks because of its topography, it can work on improving its existing parks, encourage investors to construct pools, theme parks, sports arenas and even convention centers which the vast land of Caloocan City can accommodate, especially in the first district, commonly referred to as North Caloocan. Tourist Facilities other tourist facilities and services like postal services, medical facilities, malls, specialty and souvenir shops have to be either improved or put up. The Local Government of Caloocan has to infuse more capital in improving its General Hospital and the other two private hospitals

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in the City can seek both local and international accreditation to improve and ensure quality health services.

Researcher highly suggested that the City for a good period of time, was known as the furniture City because of its sturdy and well-crafted pieces of furniture. Opening of more tourism training schools for steady supply of competent manpower should be encouraged. Cultural Affairs and Tourism Office should coordinate with the other government agencies in order to address the problems. The City Government of Caloocan should consider the competitiveness of tourism services assessment for Tourism Services.

Lastly, Other researchers should come up with same study for other cities, municipalities and provinces in the country as their springboard in developing or enhancing their local tourism programs which in turn should be made basis of the Local Government Unit for the Sustainability Development Plan.

Keywords

tourism services, phillipines

Understanding Social Commerce Adoption in Agriculture: A Systematic Literature Review

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Abstract

Social commerce, the integration of social media into e-commerce, has resulted in significant transformations for both businesses and consumers. Several research have been conducted to understand social commerce, and numerous systematic literature reviews have produced insights from the current literature on social commerce. However, given the tremendous growth of social commerce in recent years, it is crucial to investigate new insights in this domain. This study presents a comprehensive, systematic analysis of social commerce adoption in agriculture by employing the SALSA framework. The review encompasses 1,125 research publications on social commerce published between 2014 and 2023 to gain an understanding of the related theoretical foundations, as well as the methods used in this area, and the benefits, issues and challenges. The findings indicate that the studies cover several topics, with a predominant focus on consumers' purchase behavior and decisions, and consumers' trust, engagement and satisfaction. In addition, this study demonstrates the potential of social commerce as a promising field of research, particularly in the agricultural sector. It also provides a clear direction for future studies by identifying gaps in existing research literature through a systematic review and examining papers over the past ten years, and opportunities for future research.

Keywords

Social Commerce, Agriculture, Literature

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Mapping Loyalty: Exploring the Interplay between Customer Satisfaction and Store Loyalty

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Abstract

In an increasingly competitive marketplace, understanding the intricate relationship between customer satisfaction and loyalty has become imperative for business striving to thrive and grow. As technology transforms the retail landscape, the dynamics of customer satisfaction and loyalty among shoppers undergo profound shifts. Using the widely recognized SERVQUAL framework, this study endeavors to unravel the nuanced dynamic that govern customer satisfaction and its profound impact on fostering loyalty among shoppers. The service quality dimensions used in this study are tangibility, reliability, responsiveness, assurance, and empathy. Customer loyalty constructs has been measured using three dimensions: perceived value, time stress, and trust. A total of 350 shoppers from the leading supermarkets in the Philippines were considered for this study. Data collected was processed using SPSS version 23. Frequency, percentage and mean were used for the description of the profile of respondents and their level of satisfaction on the SERVQUAL dimensions and level of agreement on the loyalty constructs. ANOVA and t-test were utilized for test of significant differences on the ratings when respondents' profile was considered. In correlating the variables of the study, Pearson r was used to measure the strength of relationship between SERVQUAL dimensions and loyalty constructs. Results of the study revealed a high positive relationship between tangibility, reliability, assurance dimensions and shopper loyalty constructs. Furthermore, this study explored customer satisfaction along five demographic variables, resulting in the detection of significant differences in the shoppers' satisfaction on account of gender, civil status, educational attainment, and number of household members.

Keywords

SERVQUAL, Customer Satisfaction, Store Loyalty

Proposal for an Inventory System based on the ISO 9000 Standard to Increase Quality Management

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Abstract

In a highly competitive business context, quality management represents an essential element to guarantee customer satisfaction and achieve long-term success. However, many organizations face inventory management challenges that impact the quality of their products or services. To a large extent, this is due to the lack of effective inventory management systems, which triggers various incidents and a decrease in operational efficiency, which triggers quality management to take a backseat and affect the services provided. are provided. For this reason, the fundamental purpose of this article is to propose the establishment of an inventory system based on the standards of the ISO 9000 standard as a solution to this problem. The main objective is to demonstrate how this strategy can contribute to improving quality management, increasing operational efficiency and strengthening the company's reputation. Through the implementation of an inventory system that will allow items to be classified, using the ABC methodology for better management of the items that will be entered into the system. To achieve this purpose, an exhaustive review of the literature was carried out. In this process, a total of 144 potential studies were examined, of which 22 were selected for the preparation of this article. The result of this research, which was carried out after an implementation of an inventory system, was implemented in the company and through surveys of both staff and customers, it was observed that there was a notable improvement in contrast when it was not accounted for. with any type of inventory system.

Keywords

ISO 9000m Increase Quality

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Software Application using Deep Learning for Early Detection of Melanoma

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Abstract

Melanoma is an aggressive form of skin cancer that can be fatal if not detected and treated early. Early detection plays a crucial role in improving patient survival rates, but can be challenging for dermatologists due to the complexity of the visual characteristics of melanomas. Although there are medical techniques for diagnosis such as dermoscopy, it is necessary to consider artificial intelligence as a key tool for diagnosing melanoma due to its high precision and data processing capacity, using deep learning techniques. The objective of this article is to identify deep learning architectures and image processing techniques that assist in the early detection of melanoma through a trained model that efficiently recognizes warning signs and contributes to an early and accurate diagnosis. The methodology used was the literature review. As a result of this research, 65 potential studies were found, of which 32 studies were chosen to develop a software application that is interactive, easy to use and allows healthcare professionals to upload dermoscopic images to obtain an instant evaluation of the probability that the lesion is a melanoma. This not only speeds up the diagnosis process, but can also reduce doctors' workload and ultimately save lives by detecting melanomas in their early stages.

Keywords

Deep Learning, Melanoma, Image Classification

Performance Evaluation of An Enhanced Solar Still Using Simulink

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Abstract

Solar desalination stands out as an economical and practical solution for addressing the water needs of small communities. Despite its advantages, the method faces a significant technical challenge related to low solar yield. This study addresses this challenge through innovative enhancements, primarily the integration of a Compound Parabolic Collector (CPC) and Thermal Energy Storage (TES). The incorporation of CPC plays a pivotal role in mitigating the issue of low solar yield. By reducing losses through reflection, the CPC system significantly improves the efficiency of solar radiation capture in the desalination process. Furthermore, the study introduces TES as a strategic component to augment solar still technology. Functioning as a storage system, TES not only stores solar energy but also provides high energy when needed. This additional energy supply enhances the rate of water evaporation, thereby contributing to an overall improvement in the production of clean water—a fundamental objective of this research. The evaluation of these enhancements is carried out through the use of the SIMULINK platform. Simulation results demonstrate that the solar still, enhanced with the addition of TES and CPC, can consistently produce an average of 15 liters of clean water. This promising outcome not only establishes the effectiveness of the proposed enhancements but also opens avenues for further refinement. The study highlights the potential for continued improvement by exploring different types of TES and optimizing operational parameters for both CPC and TES. These avenues for refinement present opportunities to enhance the efficiency and output of solar desalination technology. In conclusion, this research contributes to the advancement of solar desalination as a reliable and efficient method for providing fresh water to small communities. The study not only addresses the technical challenges associated with low solar yield but also provides a foundation for future research to unlock even greater potential in solar desalination technology.

Keywords

Compound Parabolic Collector (CPC), Thermal Energy Storage (TES), SIMULINK Platform

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Theories of Political Economy and Economic Growth and Development in Contemporary Nigeria: An Application of Economic Liberalism

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Abstract

It is generally understood that poor economic growth in Nigeria requires solutions from various thrusts such as reform or policies that are more market-oriented, policies on the applications of appropriate technology, population and employment policies, as well as macroeconomic policies. Numerous economic strategic plans and reforms have been initiated in Nigeria for diversifying the source of revenue of the economy; most of which have lasted without anything much to show with regard to the country's economic development. Thus, this study examines the linkages between the application of economic liberalism (An International Political Economy Theory) and economic growth and subsequent economic development in Nigeria. Using data from the existing documents on the topic in question, the study finds that one of the very simplest and viable means of improving Nigerian economic growth is embracing the policy of economic liberalism that necessitates trade liberalism for free exchange of goods, services and ideas across the globe. Thus, the study recommends alongside other recommendations that The Federal Government should revisit its policy of border closure through which various commodities that are necessary for the development of the country are barred from coming into the country.

Keywords

Political Economy, Economic Growth, Economic Development, Economic Liberalism, Trade Liberalism

Proposal of an Architecture for an Athletic Potential Detection System Potential Detection System for the Discovery of Future Athletes

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Abstract

This article provides a comprehensive analysis on the identification of young talents in sports, addressing the lack of a computerized system for the efficient discovery of future athletes. In order to optimize this process, it focuses on specific tools and relevant age ranges. To develop the system, the Python programming language was chosen to improve the identification of future athletes. The optimal age range for identifying sports talent was determined, and MySQL was chosen as the platform for storing the processed data. In addition, PowerBi was selected as a tool to visualize the information effectively. As a result, a total of 75 articles were reviewed, of which 38 were chosen to address the problem by proposing an architecture for the system.

Keywords

Athletic Potential Detection, Sports, Programming, PowerBi

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System for Biological Sensor-Based Stress Detection Using the Bohm-Jacopini Algorithm

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Abstract

Chronic stress has become a pervasive issue in modern society, particularly impacting professions like car driving. While mitigating stress entirely may not be feasible, exploring effective coping mechanisms is crucial. Although research on stress management is extensive, few studies have harnessed the power of modern technology to assess stress levels and simultaneously develop integrated management solutions.

Keywords

Biological Sensor-Based, Bohm-Jacopini, Stress Detection

Designing an Intelligent System for Garbage Management in Residential Districts Using IoT

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Abstract

Nowadays, solid waste is a significant environmental problem that has a significant impact on the health and well-being of society. There is currently a lack of infrastructure and inadequate management involved in the current garbage collection process, which does not utilize the latest technology for real-time disposal of waste. This issue may be solved by promoting a sustainable and clean environment through the use of Internet of Things (IoT) technologies. In this article, we will use Zigbee technology and environmental sensors to build and construct an efficient smart system. The suggested framework senses and gathers data from each bin, tracks the position of the bins, and detects the discharge of hazardous gasses to monitor the amount of waste in the bins. The gathered data is transmitted using Zigbee technology from the waste bin on the transmitter side of the system to the control unit on the server side. Additionally, the suggested study analyzes the power consumption and packet delivery ratio of two wireless transmitting technologies, namely Wi-Fi and ZigBee. A comparison of Zigbee and Bluetooth network performance Moreover, the proposed paper provides an analysis of the packet delivery ratio and power consumption of two wireless transmitting technology including ZigBee and Wi-Fi. A comparison of the network performance using Zigbee and Wi-Fi technology has demonstrated that Zigbee technology provides better performance in terms of the suggested metrics.

Keywords

Arduino, Smart City, IoT, Garbage, Ultrasonic Sensor

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Structural Analysis of Antihailstorm Structure for Crop Protection

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Abstract

Particularly in the last ten years, the increasing frequency of hailstorm events has caused significant losses and damage to the agricultural sector. There were multiple hailstorm events in India in February and March of 2014, which not only damaged a large portion of the country but also the interior regions of the peninsula. In a world where unpredictable weather events, such as hailstorms, can destroy our infrastructure, crops, and way of life, there is an urgent need for proper protection.

This introduction serves as the foundation for our analysis of this important project, during which we will look at the importance of this kind of organization, the applicability of trial-and-error improvement, and our commitment to fortifying our defenses against the fury of nature. We will outline our objectives, methodology, and potential benefits that this framework could provide to our communities, farms, and other organizations in the sections that follow. As a team, we want to create a solution that will protect against hail damage while simultaneously enhancing our ability to adapt to shifting circumstances and thrive in them. Several studies have looked at this issue and recommended that hailstorm forecasts be implemented in addition to building a strong, cost-effective structure to protect crops from thunderstorm damage.

Keywords

Anti-Hailstorm, Protection, Crops, Structural Design

Training Program for an Internet-Of-Things Assembler: A Curricular Innovation

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Abstract

The Internet of Things (IoT) has revolutionized our interaction with objects, from daily items to industrial systems, creating a demand for skilled IoT assemblers. To address this need, a training program titled "Training Program for an Internet-of-Things Assembler: A Curricular Innovation" was developed, aiming to enhance competencies in IoT assembly. The study delves into pivotal competencies for IoT professionals, offering insights for upskilling in the domain. The IoT Training Program equips trainees with interdisciplinary proficiencies for prototyping robust IoT solutions and orchestrating end-to-end systems. Curricular innovation's significance in tackling education challenges in the digital age is underscored. Employing Research & Development (R&D) design, the study followed the Analysis, Design, Development, Implementation, Evaluation (ADDIE) methodology. The "Research" phase identified fundamental competencies for IoT assemblers through Computational Topic Modeling and Latent Dirichlet Allocation (LDA). The "Development" phase encompassed Design, Development, Implementation, and Evaluation. A comprehensive training program was created and assessed. A validated survey questionnaire gauged participants' perception of implementation, revealing the program's efficacy. Results highlighted the program's impact, enhancing IoT assemblers' skills in assembling/disassembling IoT devices, applying competencies, and using cloud services over IP networks. Integration of Computational Topic Modeling with LDA effectively identified pivotal competencies, enabling significant skill enhancement and integration into the transformative IoT field. The study's insights facilitate continuous innovation in IoT assembly through ongoing refinement of the training program. The study underscores curricular innovation's importance in addressing education challenges in the digital era, paving the way for proficient IoT professionals.

Keywords

Internet-of-Things, Curriculum Innovation, Emerging Technology, IoT Assembler

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Bikers Hub MNL: A Mobile Cycling Track and Social Media App

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Abstract

From the wise words of the world renowned cyclist, Lance Armstrong, "Pain is temporary. Quitting lasts forever.". Cycling is mainly an aerobic activity, which means that your heart, blood vessels and lungs all get a workout. This also helps to protect people from serious diseases such as stroke, heart attack, cancer, depression, diabetes, obesity and arthritis. Aside from health benefits, it also helps the environment. Cyclists make cities livelier, whereas cars tend to diminish the vibrancy of our streets because they do not emit harmful pollutants that destroy our earth. Bikers Hub MNL is an android navigation and social media application which provides cyclists from metro manila a guide for transportation and navigation, track their cycling activity and communicate with other bikers. Not only does it have the navigation system wherein the user can use throughout the ride, it also shows landmarks within metro manila to go to and nearby bike shops in case you are in need of one since unfortunate events may occur, this feature can help with the cyclist to point out where they could ask for help. Cyclists can sign up together with other users making it interactive to promote camaraderie between cyclists and create a healthy community with one another. Together with building a community, users can also post their suggestions and remarks of landmarks in the app for the other users to see and an activity wherein users can post and pin meet up location and time where other users can ask to join.

Keywords

Bikers Hub, Mobile Cycling Track, Social Media

Knowledge Management Strategy Through Learning Management System in Senior High School: Case Study in Indonesia

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Abstract

Knowledge management supports educational institutions in improving quality through their ability to manage knowledge. Currently, the use of technology in the knowledge management system is a strategy that schools must consider, including the existence of a Learning Management System. Therefore, this study aims to determine the knowledge management strategy through Learning System Management in Senior High Schools in Indonesia. This research uses qualitative analysis with a single case study. Through the results of this study, it was found that the knowledge management process in Indonesian high schools uses a Learning Management System, namely Moodle, which involves five processes: creating, sharing, structuring, using, and Auditing. Through the involvement of ICT in the form of a Learning Management System, it is expected that various knowledge and information can be appropriately stored and more efficiently.

Keywords

CCS Concepts, Applied Computing Education, Education, Learning Management Systems, Knowledge management, Learning System Management, Senior High School

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Predicting Cryptocurrency Returns Using Classification and Regression Machine Learning Models

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Abstract

People are starting to see the cryptocurrency market as a viable source of income and investment, similar to the stock market, as the concept of cryptocurrencies continues to gain popularity. Predicting Bitcoin returns is related to financial machine learning, which uses time series to forecast price variance. This study starts with the daily close price of Bitcoin for its initial dataset. The price is transformed into percentages and binary classes, which categorize into "Up" and "Down", after which a time series is applied to produce two datasets: a categorical dataset for classification and a numerical dataset for regression. For classification that represents a Binary classification in asset-price forecasting, k-fold cross-validation is applied to ensure that the best classifiers are selected for testing and analysis. Most of the regression analysis was based on visualization, which displayed the predicted prices by each regressor in front of the original values and helped analyze the models' results more accurately. The outcomes of this study were achieved by anticipating bitcoin returns using classification and regression machine learning models, despite the approaches' low accuracy and significant precision rate to the "Up" class. At this stage, with a significant limitation regarding the dataset and a lack of other indicators, a model capable of predicting future variations is considered a beneficial addition for many trading tools or even for crypto market analysts.

Keywords

Bitcoin Predictability, Time-Series Cross Validation, Binary Classification in Asset-Price Forecasting, Financial Machine Learning

Application of Hots and Relevance in Humanities and Sciences for Gen Z Students at the Tertiary Level

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Abstract

People are starting to see the cryptocurrency market as a viable source of income and investment, similar to the stock market, as the concept of cryptocurrencies continues to gain popularity. Predicting Bitcoin returns is related to financial machine learning, which uses time series to forecast price variance. This study starts with the daily close price of Bitcoin for its initial dataset. The price is transformed into percentages and binary classes, which categorize into "Up" and "Down", after which a time series is applied to produce two datasets: a categorical dataset for classification and a numerical dataset for regression. For classification that represents a Binary classification in asset-price forecasting, k-fold cross-validation is applied to ensure that the best classifiers are selected for testing and analysis. Most of the regression analysis was based on visualization, which displayed the predicted prices by each regressor in front of the original values and helped analyze the models' results more accurately. The outcomes of this study were achieved by anticipating bitcoin returns using classification and regression machine learning models, despite the approaches' low accuracy and significant precision rate to the "Up" class. At this stage, with a significant limitation regarding the dataset and a lack of other indicators, a model capable of predicting future variations is considered a beneficial addition for many trading tools or even for crypto market analysts.

Keywords

Higher Order Thinking Skills (HOTS), Revised Blooms Taxonomy(RBT), Gen Z, Industrial Revolution 4.0.

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The Importance of Setting the Classroom Learning Environment to Maximize Its Function as a Learning Resource

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Abstract

The classroom is the main learning environment in schools where the learning process takes place. However, not only as a space where learning processes or activities take place, the classroom actually can be a source of learning if the learning environment (setting) is made in it. The purpose of this research is to examine how the learning environment (setting) in the classroom is able to maximize the potential of the classroom as a learning resource. The research method used is a literature study. The data used in this study came from textbooks, journals, scientific articles, literature reviews which contained the concepts studied. Data analysis was carried out by collecting relevant research results, sorting them, making notes, citations, and/or information which was then arranged systematically. The results of this study reveal that the arrangement of the learning environment (setting) in the classroom is able to maximize the potential of the classroom as a learning resource. Everything in the classroom should be used as a learning resource. Therefore, various equipment, objects, furniture, media and other items in the classroom should be managed, arranged, positioned and utilized appropriately and optimally as learning resources. Not only that, the arrangement of seating formations, access to various media and equipment in the classroom should also be made easier so that students can use them as learning resources more optimally. The learning environment (setting) in this class can be categorized into types of learning resources utilized (by utilization resources) and including environmental learning resources.

Keywords

Classroom, Learning Environments, Learning Resources, Learning Setting

Digital Pedagogy: A Survey on the Impact of Technology on Gen Z Learners

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Abstract

Generation Z(Gen Z) is the current wave of student population in higher education. They are digital natives and hence designing the curriculum for them by integrating their digital skill sets will help them to learn with zeal. Understanding the qualities of Gen Z becomes necessary for designing the curriculum for them. It becomes very important to reexamine the curriculum and find out the right one to help them to successfully sail the process. There is much research happening on the importance of Gen Z and technology. Gen Z and technology cannot be secluded. Gen Z demands changes in teaching learning strategies which need to incorporate technology and social media. This study aims to gather insights on how Gen Z learners perceive and engage with digital tools, their (technology) effectiveness in enhancing learning outcomes, and any potential challenges or drawbacks associated with their (technology) use. Additionally, this study will also investigate the role of education and learning environments in fostering these competencies and preparing the millennial for future challenges and opportunities.

Keywords

Gen Z, Digital Competencies, Learning Outcomes, Curriculum, Digital Natives

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Implementation of Teachers' Digital Literacy to Improve Learning Skills in Era 4.0 (Systematic Literature Review)

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Abstract

Digitalization is shaping the overall structure of education around the world, with attention received from governments, practitioners, researchers, and policymakers for educational development. Digital technologies are bringing major changes to education, skills and employment. These changes reflect how technology is increasingly at the center of education 4.0. Digital technologies evolve through capabilities and skills in resources. This research is an SLR by identifying various appropriate and relevant literature. Data searches were conducted using criteria determined by researchers from various search engines such as Google Scholar, Scopus, Researchgate, and which resulted in several articles for further analysis Furthermore, the data were analyzed using a qualitative approach to describing the research findings. The results showed that digital technology in education in the era of reformers 4.0 greatly affects the digital literacy skills of educators if digital technology training programs are carried out continuously. In addition, attention from the government and policymakers is needed for rural educators who are still not ready for the presence of digital literacy.

Keywords

Digital Technology, Digital Literacy, Learning Skills

Typhoon Guard: Windows Protection System for Typhoon

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Abstract

Typhoons are hazard that is threatening the Philippines every year. Design and construction of the houses and shelter in Catanduanes changes rapidly incorporating provision against wind speed. The effect of typhoon become the basis in the design of structures and the windows components. The study sought to answer what is the type of house built in Catanduanes, what is typical window system used for houses/building in Catanduanes, what are the protection and provision being implemented to withstand the effect of high winds pressure, and what are the safety practices to counter the effect of high winds of typhoon? Most designs and houses constructed in the late 80's already introduced these provisions that make them easy to install the windows shutter locally termed as "typhoon guard". This was also implemented by architects, engineers, and owners as a mandatory inclusion in the building construction and design. The selection criteria for designer and owner include the budget, structural integrity of the window, and aesthetical appearance. Respondents acknowledge that windows must be protected from the force of gusty winds and debris impact and this will also ensure that your entire house or building stays safe and intact. Many respondents agree that it is vital to protect the window from breakage by using materials that can withstand the full force of the wind pressure or employing protection components to keep the window intact and safe. However, most owners of nipa hut and a handful of owners of bungalow houses suffer minor and major damages during super typhoon Rolly, and they have common concerns about their safety and evacuation to safe buildings is the ultimate safety practice to mitigate the risk pose by the typhoon. It is recommended that typical windows systems to be used in homes and buildings must be rigid enough to withstand wind forces. Safety practices to counter the effect of high winds of typhoon includes removal of possible debris and projectile must be practiced. Also, Integrated windows protection design such as windbreaker must be re-integrated into the design of the building and adopt new window design to mitigate typhoon wind forces.

Keywords

Housing Category, Typhoon Guard, Typhoon Wind Force, Windows Protection

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StreamShield: An Anti-Piracy Movie Streaming Android Application with Screen Recording Detection and Integrated Media Content Protection using Advance Encryption Standard (AES) Algorithm

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Abstract

In today's digital era, the entertainment industry faces a concerning challenges in protecting intellectual property rights, especially in the context of movie streaming. Unauthorized screen recording during playback poses a significant threat to the integrity of copyrighted content, leading to illicit distribution and negatively impacting both content creators and legitimate viewers. To combat these issues, "StreamShield," an anti-piracy movie streaming Android application, has been developed. This project focuses on integrating algorithm and technology to address screen recording detection and content protection while actively engaging users in the fight against piracy.

The key features of the StreamShield application are designed to fortify content protection and enhance the user experience. The application itself incorporates an Anti-Screen Recording Mechanism, with the utilization of machine learning like Long Short-Term Memory (LSTM) to monitor video playback in real time. This system swiftly identifies ongoing screen recording and employs strategic countermeasures to halt the recording process. Furthermore, the application implements an Encrypted Media File system using the Advanced Encryption Standard (AES) algorithm, allowing authorized users to enjoy movies while keeping downloaded files encrypted on their devices. The offline viewing feature is also available in the application. Additionally, the Picture Overlay Interference feature adds an extra layer of complexity for illicit screen recording, making it challenging for infringers to capture content cleanly.

By addressing these challenges, StreamShield not only redefines copyright enforcement but also empowers users to actively participate in safeguarding creative content. This project adheres to ISO-25010 guidelines, ensuring functionality, performance efficiency, reliability, and usability, thus contributing to a more secure and accountable digital entertainment ecosystem.

Keywords

Anti-piracy, Screen Recording Detection, Content Protection, AES Algorithm, Machine learning, Intellectual Property Rights, Movie Streaming

Lashtech: A Web App-Based Lash Recommendation, Virtual Try-On, and Seamless Booking App using Geo Location Powered by Artificial Intelligence

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Abstract

In the expanding field of the lash salon industry, this study tackles common challenges faced by clients through the development of a cutting-edge Web App-Based Lash Recommendation, Virtual Try-On, and Seamless Booking Application powered by AI and Geo Location technology. Clients frequently struggle to select appropriate eyelash styles, have issues with manual appointment booking, and lack methods to locate nearby salons that fulfill their tastes. The AI-driven Lash Recommendation feature analyzes facial features to suggest personalized lash styles, the Virtual Try-On functionality allows clients to virtually preview different styles, and the Seamless Booking feature enables effortless scheduling by locating nearby salons based on preferences and availability. Adhering to ISO 25010:2011 software quality standards, the system underwent rigorous testing and evaluation, resulting in an impressive overall mean satisfaction rating of 4.50 out of 5.00. This rating represents the platform's effectiveness, usefulness, and practicality, and it promises to improve client satisfaction and redefine industry norms.

Keywords

Lash Recommendation, Virtual Try-On, Geo Location, Seamless Booking, Facial Recognition

9 789392 105999

Convey: Developing A Facial Emotion Recognition System for Enhancing Interpersonal Interactions of Children with Autism Spectrum Disorders

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Abstract

Children with Autism Spectrum Disorder (ASD) oftentimes have difficulty in both interpersonal and intrapersonal interactions. Most children with ASD lack emotional intelligence and cannot properly comprehend social cues and responses of the people around them. These social impairments are causing them to have difficulty in maintaining relationships thus, to combat these issues, the researchers presented an application with Facial Emotion Recognition (FER) technology using the deep-learning approach namely Convolutional Neural Network (CNN). Using the FER allows the children to perceive the emotions of their interaction partner at face value. The model used in developing the application sits at an accuracy level of 98%. In addition to the FER technology, the research implements a kind of mood meter that enables the children to plot their mood and a dashboard that tracks the accumulated plots. The tracker lets the children convey their emotions as well as help their interaction partner to understand them better. Furthermore, the application includes a recommendation system that suggests various relaxation and meditation techniques that the child can use to manage outbursts or spontaneous emotional activity. The Convey mobile application aimed to empower children that has ASD and help them lead a normal life.

Keywords

Autism Spectrum Disorder, Interpersonal, Intrapersonal, Emotional Intelligence, Facial Emotion Recognition, Convolutional Neural Network

Enhancing The Barangay Information System by Integrating Geolocation Technology and Tagalog Chatbot using NLP Algorithm for Efficient Community Engagement and Service

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Abstract

This research aims to address the need for improved efficiency and accessibility of a local government constitution which is the barangay services in the Philippines through the integration of an English – Tagalog Chatbot using NLP Algorithm into a progressive web-application based barangay information system and Geolocation Technology which detects the location of the affected residents and nearest evacuation centers. The specific objectives include developing an information system for efficient resident data management, training an AI chatbot to handle both English and Tagalog inquiries, and integrating geolocation technology for disaster risk reduction monitoring. The study's significance lies in enhancing the service provided by barangays, which are often the most accessible government agencies to the public. The system benefits the public by increasing transparency and providing convenient access to services, barangay officials by streamlining transactions and reducing their workload and future researchers by laying the groundwork for further technological advancements in governance. The overall acceptance of the system based on user's feedback falls within the satisfactory category which indicates its potential to improve barangay operations. The Barangay Information System, as demonstrated in this study, efficiently manages resident information, streamlines the delivery of certificates, enhances user experience, and ultimately contributes to more effective and efficient community service delivery.

Keywords

Barangay Information System, Geolocation Technology, Tagalog Chatbot, NLP Algorithm

9 789392 105999

PawsomeDetect: Harnessing Pattern Recognition and Data Mining for Canine Age and Breed Detection Abstract

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Abstract

PAWSOMEDETECT leverages pattern recognition to revolutionize canine age and breed detection. Determining a dog's age and breed from photos has become vital due to rising popularity of dogs as pets and the demand for personalized, data-driven pet care. Traditional methods rely on manual inspection and judgment, prone to errors. Furthermore, mating compatibility among breeds is a consideration for dog owners. This aids users in identifying compatible breeds for mating, increasing successful mating chances.

To achieve accurate age and breed, deep learning models are trained on a vast collection of annotated dog photos. These models use Convolutional Neural Networks (CNNs) and transfer learning to improve performance and generalize knowledge, revealing age and breed patterns. Researchers, breeders, and owners can benefit from this data. Following ISO-25010 guidelines, the study confirms the system's accuracy in age and breed determination, as well as its ability to detect user locations for successful mating. It meets response time and resource utilization requirements, ensuring timely operations.

In conclusion, "PAWSOMEDETECT" a groundbreaking pattern recognition-based method for accurate age and breed identification in dogs. It provides data-driven solutions for pet care, mating compatibility, and more, benefiting users and dogs. The study's continued enhancements promise even greater accuracy and functionality.

Keywords

Dog Age Detection, Breed Recognition, Pattern Recognition

Faculty Evaluation and Qualification Analysis System Using Naïve Bayes Algorithm

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Abstract

Educational Institutions continue to seek excellence in their hiring practices given the vast spectrum of applicants ready to pursue a profession. Considering the degree to which student achievement is impacted by teacher effectiveness, this is significant. This prime perception makes it clear that there is an increasing requirement to investigate and comprehend how we may enhance the hiring procedure at educational institutions. In this study, the researchers developed a system that utilizes the Naïve Bayes Algorithm to predict which of the applicants has a resume that qualifies as faculty in a top private university in the Philippines. This will significantly apply analytics in faculty hiring decision-making and help hasten the traditional process used by Human Resource Departments when determining whether or not applicants meet the requirements for open positions inside their institution, the list of qualified applicants will be integrated into the system with filtering and sorting feature to help the Human Resource Department of the educational institution locate applicants in particular categories or fields of specialization where they intend to hire. Utilizing the ISO 25010 evaluation, the web-based system shows excellent Functional Suitability, Performance Efficiency, Usability, and Reliability, with respective means of 3.26, 3.20, 3.37, and 3.42.

Keywords

Faculty Qualification, Naive Bayes Algorithm, Prediction

9 789392 105999

PAWrfect Match: A Web-Based Animal Adoption and Rescue System that uses Content-Based Filtering Algorithm for Recommending Potential Adoptees

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Abstract

The study involves an automated system where pets who are adoptable are advertised making it easier for potential adoptees to find the pet for them. Due to the rise of abandonment of pets in recent times, their need for a new home is also rising. The study focuses on streamlining the advertisement of adoptable pets from different shelters or rescuers to promote adoption instead of buying pets. Users will be recommended pets based on their interest from the pre-survey in the sign-up page, this will make it easier for users to find the suitable pet for them. It also includes a notification feature to notify the users if there is a new adoptable pet with characteristics that aligns with their interests. Users can also file a request for rescuing pets that will be reviewed by the shelter themselves. There is also a forum tab where users and professionals are able to add a new post and this can be filtered based on their category; the post of the professionals always appears on top in order for users to see the most relevant posts first. The system proved that it was able to successfully serve as an advertising platform for shelters and their stray cats and dogs. The forum section is also a good addition as it serves as a platform for adopters and pet-owners to seek help and tips from fellow pet owners and professionals. With the use of the ISO 25010 evaluation, it is evident that the web-based system excelled in Functional Completeness, Functional Correctness, Capacity, Time Behavior, Learnability, User Interface Aesthetics, Operability, and Maturity.

Keywords

Pet Adoption, Algorithm, Animal Shelter, Forum

Green biobased Polyethylene Terephthalate (bioPET) Composites Reinforced of Different Lengths of Basalt Fiber for Technical Applications

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Abstract

Nowadays, biobased polymers play a significant role in the global market. Their main advantage is their green origin and comparable properties with petrochemical polymer composites. Due to their high strength properties, they are not only used in the packaging industry, but increasingly in engineering applications. This paper presents the results of physical and mechanical properties and fatigue tests performed on 4 types of composites based on bio-based PET matrix (Ecozen) with 7.5 and 15% of two different lengths of basalt fibers produced by Basaltex. A greater increase in tensile and flexural strengths and higher moduli of elasticity were observed for the shorter fibers with a length of 150 mm, with their greater ability to dissipate mechanical energy. SEM images were also taken, showing the interaction between matrix and fibres of different lengths, as well as fatigue failure mechanisms. The produced composites have great potential for use as eco-friendly materials in automotive, aerospace, interiors and agricultural applications.

Keywords

bioPET, Basalt Fiber

9 789392 105999

A Novel Hybrid Composites based on Bio-Polyethylene Terephthalate with Waste Microparticles as Mollusc Shells or Eggshells and Short Basalt Fibers

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Abstract

The aim of the work is to assess the influence of the addition of waste particles and basalt fibers on the mechanical properties of composites based on bioPET. Biocomposites were produced by injection molding using poly (ethylene terephthalate) from renewable sources (bioPET NP 002) by Nature Plast (France) as a matrix, 10% amount of fillers and 10% basalt fibers. The fillers were waste particles: egg shells, mollusk shells and coffee grounds. For this purpose, tests such as tensile, bending and impact tests were carried out. Optical and scanning microscopy were also performed to evaluate the morphology of particles and samples. The results showed that the addition of waste particles resulted in a slight decrease in tensile and bending strength, but a significant increase in the bending and tensile modulus (up to 133%). However, in the case of hybrid composites, an increase in both strength and modulus was observed. Waste particles and natural basalt fibers allow for the production of durable and stiff green composites with a reduced carbon footprint.

Keywords

bioPET, Basalt Fiber

Investigation of the Environmental Impact of the Use of Timber in Long-span Constructions

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Abstract

Timber, one of the oldest and most widely used building materials, is a fibrous building material obtained from natural and sustainable resources and has heterogeneous thermal and acoustic insulation properties. Timber is used in the construction of masonry, frames, and modular structural systems in architecture. In addition, it is widely used in the manufacturing of building elements and materials, as a coating, and in the production of molds and scaffolding. Engineered timber products, such as laminated timber materials and fiber boards, also have an important place in the field of construction. In this study, timber construction examples used in the built environment are examined specifically for covering long spans that are architecturally challenging. Thanks to the advanced timber joint techniques that enable wide spans to be covered, the development of laminated timber material, and progress in wood treatment, timber has regained importance in the construction industry as a building material. In addition to all these, timber, which is ecological, easily recyclable, long-lasting, treatable, and recyclable with low embodied energy, contributes greatly to achieving sustainability in architecture. As a result, timber construction material will be a prominent building material, as it was in the past.

Keywords

Long-Span Structures, Timber, Joint Details, Construction Materials

9 789392 105999

Better Pedagogical Practices Could Enhance the Learning Performance of Students by Adopting Hybrid Learning Approach

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Abstract

This paper focuses on Hybrid Learning approach which is an amalgamation of traditional classroom methods of teaching as well as innovative learning approach to provide comprehensive education to students which in turn can enhance the academic performance of students. Hybrid learning approach conjoins physical classroom along with virtual one with a motive to impart quality education systematically to students. Hybrid learning approach balances student learning outcomes perfectly. It not only enabled students to focus on their learning remotely but also helped them to learn efficiently by accessing to various technology enabled educational resources. The present study consisted of 40 students. The hybrid mode of learning was given to 19 students as Experimental group, on the other hand Conventional method was used with the Control group consisting of 21 students. The experiment last long for four weeks. The study findings showed that the experimental group performed academically well with the implementation of Hybrid pedagogical practices than that of Control group of students with the implementation of conventional pedagogical practice. Thus amalgamation of technology tools to conventional classroom teaching can create better learning environment for students in improving their academic performance.

Keywords

Pedagogical Practice, Hybrid Learning

Design of Bell 429 Helicopter for Range Performance

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Abstract

This paper is all about improving the range performance of Bell 429 Helicopters, which is really important for mission versatility and efficiency. We're looking for ways to make the Bell 429 more versatile and multi-role, so it can meet the needs of different missions. We'll be using a multi-disciplinary approach with materials science and structural analysis. We'll be looking at how to reduce weight without sacrificing safety or structural integrity, and how to use advanced materials to balance strength, weight and durability. We'll also be looking at how design changes affect the helicopter's fuel consumption, endurance and range. The goal is to get the Bell 429 to have a much better range performance. The results of this research will help shape the design of rotorcraft, giving manufacturers, operators and aviation stake holder's better capabilities in their planes.

Keywords

Bell 429 Helicopter, Range Performance, Mission Versatility, Efficiency, Multi-Role Capability, Multi-Disciplinary Approach, Materials Science, Structural Analysis, Weight Reduction

9 789392 105999

To Modify Pilatus PC-24 Business Aircraft to Medical Emergency Purpose Aircraft

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Abstract

The Pilatus PC-24 is a versatile and capable business aircraft that has gained popularity in the aviation industry. In recent years, there has been a growing need for aircraft that can be readily adapted for medical emergency purposes, especially in remote areas or during disaster response operations. This abstract explores the concept of modifying the Pilatus PC-24 to serve as a medical emergency purpose aircraft, the proposed modification aims to transform the Pilatus PC-24 aircraft by re-imagining its interior to serve dual functions - a versatile business jet and a state-of-the-art air ambulance. This innovative design incorporates adjustable seats that seamlessly transition into comfortable beds, maximizing the space within the aircraft to accommodate critical medical emergencies while ensuring a luxurious experience during non-emergency flights.

Keywords

Pilatus PC-24, Business aircraft modification, Medical emergence purpose, Passengers' treatments, Aircraft medical interiors

Comparison Study of Solid Rocket Motor Grain Geometries

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Abstract

The major goal of this study is to design and build a solid rocket motor. Which is used as experimental sounding rocket. This paper mainly focus on fundamentals of rocket casing, solid propellant and grain cross sections. Based on the values and parameters the material are selected accordingly. SRM uses different grain cross sections to analyse higher burning rate (star, circular, double anchor). Design and analysis configuration using CATIA and open rocket software. This paper is manly concerned about to find high burning rate grain cross section.

Keywords

Design, Rocket, Software, Propellant

9 789392 105999

Tap ‘n’ Charge: RFID Security Charging Hub

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Abstract

The security vulnerability of public charging stations poses a risk to mobile device users, while convenience stores encounter operational challenges with their coin-based charging systems and revenue tracking. This study introduces “Tap ‘n’ Charge: RFID Security Charging Hub,” an IoT system utilizing Arduino and RFID technology. It integrates a Sales Forecasting System driven by the XGBoost Algorithm and enables cashless transactions through PayPal. The XGBoost model achieved 92.84% accuracy for Mean Absolute Error (MAE) and 87.57% for Root Mean Square Error (RMSE), demonstrating precise sales prediction capabilities. This innovation addresses device security concerns and streamlines revenue tracking, presenting a transformative solution for both users and businesses operating charging stations or convenience stores.

Keywords

RFID; Internet of Things (IoT); Arduino; XGBoost Model; Public Charging Stations

A Mobile-based E-store Application for VillMan Computers with Web-based Management System

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Abstract

VillMan Computers aimed to increase its accessibility and operational effectiveness in response to market change through development of efficiently functioning mobile application that will allow its customers to shop more conveniently online. The project's goal was to develop a web application for managerial control and a mobile ordering application focused on the needs of the client through intuitive user interface. The applications were designed with functionality and accessibility in mind. Agile development approaches were used to make sure the project was flexible and responsive at all times. The examination of mobile and web application that has been developed also includes an exploration of both design and security facets. This project documents the production process and discuss the technologies used to create and implement an e-commerce mobile application with a web-based management system. The result is a cohesive digital environment with a web-based admin panel for personnel management, extensive inventory and content systems, and a specific mobile application that customers will interact with in order to purchase products from VillMan. These developments simplify order processing, product control, and consumer interactions. VillMan Computers is now better positioned for success in the IT retail sector thanks to the project's successful closure of the gap between client expectations and the current constraints.

Keywords

E-store , VillMan

9 789392 105999

Automated Faculty Evaluation and Ranking System: Utilizing OCR, NER, and Decision Tree for a Web-Based Evaluation

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Abstract

High-quality education is essential for achieving a prosperous and equitable society, and a key component of this is a high-caliber faculty. But with the rapid growth of students nowadays, Pamantasan ng Lungsod ng Maynila (PLM) a first and only chartered and autonomous university funded by a city government of Manila, its manual evaluation is causing a hard time in collecting all the results of the said evaluation. Not all universities today are equipped with the necessary technology to meet their needs, and the decline in transparency during the hiring process leaves faculties and recruiters uncertain about the outcome. Three areas of concern have been identified in the hiring and promotion for PLM faculty members within their respective departments. Initially, the lack of a systemized document management system leads to difficulty in organizing and accessing valuable information. Secondly, the manual faculty selection process is time-consuming and susceptible to human errors, as the results are still manually tallied. Lastly, the absence of an automated decision support system makes it difficult for evaluators to streamline the faculty evaluation process.

EduRate is a web-based application that utilizes machine learning to automate the evaluation of faculty applicants based on their academic qualifications, certifications, publications, and creative works. This technology aims to streamline the process, instantly generating necessary reports, improving workflow efficiency, and reducing administrative work.

The researchers analyzed the data gathered using mean, utilizing the ISO/IEC 25010 standard. The participants were full-time and part-time faculty members from the College of Engineering (CoE) at PLM, selected using purposive sampling. Subsequently, applying Slovin's formula with a margin of error of 5% which was 97 respondents. Based on the summary of findings from a 5-point Likert scale, the research found that functional suitability (mean of 1.87), usability (mean of 1.60), reliability (mean of 1.86), security (mean of 1.81), and maintainability (mean of 1.89) were all rated as extremely to very effective.

The research findings highlight the potential of EduRate to significantly enhance the quality of faculty evaluation and decision-making in hiring and promotion. Moreover, this can help institutions save on resources, efficiency on evaluators' time, and transparent reports.

Keywords

Faculty Evaluation, Automated Decision Support System, Optical Character Recognition, Named Entity Recognition, Decision Tree

Shiksha: An Interactive Educational Platform for Students

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Abstract

Rural students have inadequate access to high-quality education is a serious issue that requires attention. The “Smart Friend” e-learning platform project is a research study that investigates an inventive approach to this issue by giving kids in grades 1-2 access to offline educational materials. This study looks at the present situation of education in rural regions, stressing the obstacles that children must overcome to receive a high-quality education, including a lack of resources, poor infrastructure, and trained teachers. The “Smart Friend” e-learning platform project is showcased as a case study of an inventive e-learning system that enables students to learn and master the topic through interactive quizzes, videos, and individualized chatbot support. This paper covers the platform’s design and development, including its offline capabilities, as well as the techniques employed to engage and inspire students to study. Overall, by highlighting the potential of e-learning platforms to enhance educational results for students in rural regions, this study makes an important addition to the field of education. The “Smart Friend” e-learning platform project is promoted as a potential illustration of an original and practical response to the difficulties of giving pupils in rural areas a high-quality education.

Keywords

Shiksha, Educational Platform, Learning

9 789392 105999

Plastic Injection Supplier Selection and Order Allocation for Plastic Spare Parts on Electronic Manufacturing Company

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Abstract

Manufacturing company is the company that produces goods by processing the raw material to the things that more valuable. Then, the company will sell those things to customer, then will be able to regenerate the wealth of the company. In order, to keep the quality, to make sure the production is running well (sustainability), raw material, spare parts, will become the important things to the company, either in terms of quality or quantity. The purpose of this research is to develop and find the correct method for supplier selection and order allocation for plastic spare parts. In this research, will determine the criteria for supplier selection using ANP (Analytical Network Process), by using this method, we will get the weight of criteria. After we determine the criteria, then this research will do the supplier scoring. This step will be done using Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method. After that, in this research will make the formula, for allocate order to supplier candidates, using Integer Programming. By using all three methods, we got that the most influential criteria is Quality Control (Cr-5). By using TOPSIS Method, the best supplier for mecha parts is M-1, with score 0.9256, on the other hand, the best supplier for casing parts is C-5, with score 0.213. By using Integer Programming, M-3 is the supplier with the most widely get order for plastic parts, as many as 11 parts. On the other hand, C-5 is the supplier with the most widely get order for casing parts, using this combination, we get total value purchasing as much as 130137.92.

Keywords

Plastic Injection Supplier, Plastic Spare Parts, Electronic Manufacturing Company

Consumer Perception and Purchase Intention on the Transition to Hybrid and Electric Vehicles for Sustainable Mobility and Transportation in the Philippines

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Abstract

Existence of hybrid electric vehicles nowadays is one of the emerging technologies worldwide. Different countries are using this technology on their transportation, and nowadays, a lot of other countries are gradually adapting on using this kind of innovation in their transport system. Philippines is among these countries which aims to have a sustainable mobility by embracing the use of hybrid - electric vehicles but still lots of consumers are lacking awareness on this technology. Lack of information on the social, environmental, and economic potential benefits are among the main issues of Philippines consumers that really affect its uptake. The goal of this study was to evaluate the consumer's perception and purchase intention on the transition of hybrid - electric vehicles for sustainable mobility and transportation here in the Philippines. It aimed to assess consumer awareness with hybrid - electric vehicles and its potential benefits to human beings in terms of social, environmental, and economic aspects. The study also gauged the impact of this perception on consumer's purchase intention on hybrid - electric vehicles. These objectives were attained using the Descriptive Statistics and Correlation Analysis. Using these methods, the results revealed that majority of the consumers believed on the positive benefits of transitioning to hybrid - electric vehicles in terms of social, environmental, and economic aspects. This study also showed that these benefits have high impact on the consumer's intention of buying or having a hybrid – electric vehicle. Electric vehicle is one of the most effective measures of decarbonizing the transport system. Furthermore, government and automotive businesses must strengthen their drive in spreading awareness of hybrid – electric vehicle's benefits to consumers to further support country's effort for development.

Keywords

Hybrid - Electric Vehicle; Emerging Technology; Sustainable Mobility And Transportation; Consumer Perception; Consumer Purchase Intention

9 789392 105999

SunStats: An IoT NodeMCU Integrated Web Application with Real-Time Energy Monitoring and Cost Forecasting

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Abstract

Rising global concerns about energy consumption and its environmental impact have fueled interest in renewable and sustainable energy sources, with solar energy emerging as a promising solution. In response to climate change challenges and the depletion of finite fossil fuel resources, there is a pressing need for innovative energy management solutions. This paper introduces "SunStats," an IoT NodeMCU integrated web application designed for real-time energy monitoring and cost (consumption) forecasting.

SunStats combines weather data and cost forecasting to provide tailored capabilities for local residential users. Integrating smart technologies and data-driven approaches, it aims to empower consumers with valuable insights into their energy consumption patterns.

It has a real-time energy monitoring feature, facilitated by the use of NodeMCU, allowing users to continuously track their energy consumption patterns. The user-friendly interface enables consumers to access real-time data on their electricity usage, facilitating informed decisions about energy management. Additionally, the application's integration of weather data offers contextual insights into how weather conditions influence energy usage, empowering users to adjust their consumption behavior accordingly.

Beyond real-time energy monitoring and weather integration, SunStats incorporates cost forecasting. Utilizing historical energy usage patterns and weather data, the application predicts future energy consumption for users. This forecasting feature provides consumers with valuable information about potential fluctuations in energy consumption, enabling effective planning and informed decision-making.

The primary goal of SunStats is to empower users to become proactive energy managers, offering transparency into real-time energy data, weather insights, and cost forecasts. This knowledge enables users to implement energy-saving strategies, optimize efficiency, and contribute to a more sustainable future.

Keywords

SunStats, IoT, NodeMCU, Real-Time Energy Monitoring, Cost (Consumption) Forecasting, Sustainability, Renewable Energy, Weather Integration, Energy Management

CodeExpresso (An Educational Game on Java Basics)

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Abstract

The rise of Game-Based Learning has been evident, particularly during the COVID-19 pandemic, with platforms like Quizlet, Quizizz, and Kahoot! gaining popularity as educational game tools for online teaching. These platforms have motivated students and maintained their interest in learning various topics, leading to increased participation in class activities. Similarly, programming education should strive to engage students and sustain their motivation. Novice programming students often struggle to commit to learning the subject through understanding concepts and coding, resorting to memorization methods and becoming dependent on others to complete tasks. This reliance on memorization hampers critical thinking, analysis, and logic, which are essential in programming. To address this learning materials, such as hands-on practice, are crucial to enhance critical thinking skills and encourage students to experiment through trial and error. This paper proposes the idea of incorporating Game-Based Learning principles to develop a web-based video game called CodeExpresso. Inspired by successful platforms like Kahoot! and Codingbat, CodeExpresso aims to guide students in learning Java Programming by combining hands-on coding challenges, rewarding gameplay, and engaging lectures. By leveraging the benefits and efficacy of game-based learning, CodeExpresso seeks to enhance students' knowledge and skills in programming while fostering motivation, interest, and active participation in the learning process.

Keywords

CodeExpresso, Educational Game, Java Basics

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The Effect of Employment Stability to Service Quality of a Manufacturing Company

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Abstract

The growing demand for labour flexibility has resulted in decreasing employment stability that could result in decreasing service quality provided by employees. Few studies have revealed the whole of the work force in considering this association since research on flexible forms of employment traditionally analyses employed and unemployed people separately. The job tenure and job description in employment situation, could modify its association with employee performance.

Maintaining a stable working life seems to be considered desirable by most workers (Davoine, Erhel and Guergoat-Lariviere, 2008 as cited in Franch, Aguir, Benach and Artazcoz, 2018). Paid work provides the economic resources for individual and family subsistence and also other non-material goods that are a source of well-being and health (Jahoda, 1981 as cited in Franch, Aguir, Benach and Artazcoz, 2018). The deep transformations of industrialized capitalist economies since the 1970s have been characterized by a constant demand for strategies of "labour flexibility" that has meant that jobs are becoming less stable and that long-term employment relationships are becoming less frequent (Boyer, 1993 as cited in Franch, Aguir, Benach and Artazcoz, 2018).

Research on employment stability has focused on two strategies. On one hand there is a well-established body of evidence showing that unemployment is associated with worse mental health and well-being (Paul and Moser, 2014; Rueda, Chambers, Wilson, Mustard, Rourke, Bayoumi, et al., 2012). On the other hand, the threat to job loss among employed people has received increasing interest from diverse scientific fields although no unequivocal results have been obtained (Carr and Chung, 2014). More recently, more complex approaches that analyse the impact on health and wellbeing of flexible employment contexts, consider employment stability as just one dimension of broader constructs (Benach, Vives, Amable, Vanroelen, Tarafa and Muntaner, 2014).

Meanwhile, service quality in every service providing company is important because it refers to a customer's comparison of service expectations as it relates to a company's performance. A business with a high level of service quality is likely capable of meeting customer needs while also remaining economically competitive in their respective industry. (Boundless.com, 2019). Successful businesses who remain competitive and relevant in the marketplace work proactively to obtain information from their current or potential customer base so they can ensure they are meeting their needs.

Excellence in customer service is the hallmark of success in service industries and among manufacturers of products that require reliable service. Service providers want to know what customers (internal or external) care about. Service quality is a good guess. Price, and to a minor degree product quality, also count.(Arlen, 2020).

This study aims to assess the intelligent manufacturing company employees with stabled employment status and how it affects their performance in providing quality service to their clients.

Keywords

Employment Stability, Service Quality, Company

Control System Hardware Design and Experimental Analysis

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Abstract

The study explores the relationship between hardware design and experimental analysis in control system systems, focusing on key components like position sensors, DC motors, speed control, and rotor dynamics. It explores innovative approaches to hardware design, integrating precise position sensors for accurate feedback, DC motors for controlled actuation, speed modulation techniques, and dynamic rotor behavior. The experimental analysis validates the designed hardware, examining performance, responsiveness, speed regulation capabilities, and dynamic characteristics of the rotor under various operational conditions. This provides valuable insights for applications in robotics, automation, and aerospace systems.

Keywords

Position Sensors, DC, Speed, Rotor, Hardware Design

9 789392 105999

Naturally Treated Bamboos as Possible Dowels For Joint Plain Concrete Pavement (JCPD)

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Abstract

Development of robust green building technologies that bamboo is a 'cool' constructional material and constructing a bamboo technology for rural and urban islands wherein, bamboo as sources of reinforcement materials for concrete with bamboo stick as substitute steel reinforcement. The goal of this case study is to determine the compressive strength of Joint Plane Concrete Pavement with dowels with bamboo sticks as replacement to steel bars dowels for rigid road pavement. The materials used were different bamboo species such as Dendrocalamus asper Schultes, Dendrocalamus Merrillianos Elmer, Bambusa Vulgaris Schrader and Bambusa Blumeana Schultes cut into 300 mm length, and 10 mm diameter bamboo sticks were prepared as dowels for Joint Plane Concrete Pavement treated with seawater and seawater with mango polyphenol extract soaked for 7, days, 14 days, 28days and 56 days. The materials used were in accordance with ASTM standards. The sample were prepared using rectangular box mold having a thickness of 200 mm and 300 mm length by 300 mm width specimen. The results show that the Joint plane Concrete pavement with bamboo dowels compressive strength were depend on the curing age, species of bamboo used as dowels and the treatment of bamboo sticks used. Among the species tested, Dendrocalamus asper Schultes and Dendrocalamus Merrillianos Elmer were good possible alternative replacement for steel bars as dowels for Joint Plane concrete pavement.

Keywords

Axial Compression, Axially Loaded, Joint Plane Concrete Pavement, Dowels , Bamboo Reinforced , Rigid Pavement, Bamboo Tensile Strength

Photo Detection Application of 2D Pristine and p-doped Janus WSSe: A First Principle DFT Calculation

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Abstract

In this paper, the impact of Mn doping on Janus WSSe monolayer (WSSe ML) is investigated to insight the electronic stabilities and properties using first-principle DFT method. The electronic stability of both (pristine and doped) WSSe ML is confirmed with the calculation of formation energy (Eform) and binding energy (Eb) respectively. The total density of states (TDOS) analysis depict that the pristine state of WSSe monolayer shows non-magnetic behaviour and magnetic behaviour is induced after doping of 6.25% Mn-atom in WSSe monolayer which is alignment with the charge distribution. The percentage (%) spin-polarization has been discussed to explore Mn-doped WSSe monolayer for the spintronic applications. The band structure shows bandgap modu- lation from 1.71 eV to 0.30 eV after the Mn doping in WSSe monolayer. Consequently, work function (WF) and electronic conductivity (□) for pristine and Mn doped WSSe monolayer is altered to 0.12eV and room temper-ature conductivity increased with the factor of ~1011 respectively. The modulation of electronic conductivity further results in higher Sensitivity. Lastly, the high ION/IOFF ratio has been discussed to explore Mn-doped WSSe monolayer for device switching application. The calculated results are in good contract with the available stated values.

Keywords

Janus WSSe Charge transfer, Formation energy, Binding energy, Work function Spins polarization

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The Development of the Enterprise Architecture Framework to Spearhead the Higher Education Institution Digital Transformation Based on a Socio-Technical System Theory Perspective

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Abstract

In the dynamic landscape of higher education, the digital revolution is reshaping traditional practices, presenting both opportunities and challenges. While global discourse on digital transformation in education is expanding, a notable research gap persists, particularly in developing countries where the adoption of digital initiatives is still unfolding. This gap is pronounced in the Higher Education Institutions (HEIs) of these regions, necessitating tailored strategies that account for the dual dimensions of technological and social intricacies. This study addresses this research gap by leveraging socio-technical systems theory, a framework uniquely attuned to the interplay between technology and organizational culture. Specifically focusing on HEIs in developing countries, we delve into the resistance to change from faculty, staff, and students and the imperative for robust technological infrastructure. We aim to provide practical insights and solutions, moving beyond theoretical discussions prevalent in current literature. The research unfolds through three critical phases: identifying socio-technical factors, crafting a robust Enterprise Architecture (EA) framework grounded in theoretical principles, and evaluating its real-world implementation. Using Institut Teknologi Kalimantan Indonesia as a case study, our anticipated outcomes extend beyond streamlined service delivery and digital integration to encompass refined pedagogical practices. By addressing the intricate challenges of digital transformation in higher education, particularly in developing countries, this study aims to contribute significantly to advancing knowledge in the field.

Keywords

Architecture Framework, Higher Education, Socio-Technical System

Selection of Sustainable Subsurface Suppliers using AHP-TOPSIS Method in Upstream Oil and Gas Company

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Abstract

In the upstream oil and gas industry, the selection of subsurface suppliers plays a crucial role in supporting the success of exploration and production operations. Aligned with Sustainable Development Goals (SDGs) by the United Nations and the Strategic Plan of the Oil and Gas Directorate General by the Ministry of Energy and Mineral Resources of the Republic of Indonesia, the selection of subsurface suppliers needs to incorporate comprehensive sustainability principles to avoid negative impacts on product and service quality, as well as the social and environmental responsibilities of the company that arise from the supply chain. This study aims to identify the criteria and sub-criteria factors that influence the sustainable subsurface supplier selection, assess existing procedures, and implement the developed procedures. This research was conducted using the combined AHP-TOPSIS method. The AHP method is used to provide an assessment of the importance of each criterion that influences subsurface supplier selection, while the TOPSIS method is used to evaluate alternative subsurface suppliers based on a priority scale as measured by the distance between positive ideal and negative ideal solutions. Data was collected through observation, discussion, questionnaires, and literature studies. Target respondents are professional experts in Upstream Oil and Gas Company X. The results of implementing the AHP method for the criteria with the highest weights obtained are Environment (44%), Economy (34%), Social (16%), and Ethics (6%), while the sub-criteria with the weight are Environmental Management Systems (15.10%), Occupational Health & Safety System (14.44%), followed by Code of Conduct (12.48%) and Quality (11.77%) with a consistency ratio < 0.1. Through the implementation of the TOPSIS method, it was found that supplier S5 had the top ranking with a preference value of 0.6750. In addition, to ensure that the ranking results of the TOPSIS method are not sensitive, a sensitivity analysis was carried out with additions or subtractions of 2% and the ranking of each alternative subsurface supplier did not change so it can be concluded that the TOPSIS method in this study is robust.

Keywords

AHP-TOPSIS, Sustainable Supplier Selection, Sustainable Supply Chain, Criteria, Subsurface, Upstream Oil And Gas

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Towards the Evolution of Digitalization in Learning Science: A Bibliometrics Analysis (2000-2023)

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Abstract

Digital Learning in Science greatly enriches the learning experience by utilizing technology for interactive exploration of scientific concepts. The integration of technology in the learning process opens new opportunities for virtual experiments, simulations, and global collaboration, expanding the scope and depth of students' understanding. This research aims to look at research development trends in the field of Digital Learning in Science. This research method uses bibliometric analysis from the Scopus Database. A total of 376 documents obtained from the specified keywords will be analyzed using RStudio Biblioshiny and Vos viewer. The results of the analysis show that only 71 publications were published from 2000 to 2014, but this has increased fourfold with 305 publications from 2015 to 2023. The British Journal of Educational Technology leads as the source with the highest h-index and publication documents, with h -index is 7 and the number of publications is 8 publications. Researchers from the University of Oulu, located in Finland, had the highest publications, namely 20 publications. Matthew L Bernacki and Gwo-Jen Hwang have the most publications in this field, namely 4 publications. Shaffer & Gee (2006) leads the highest number of citations with 296 Scopus citations. There are four research focuses, namely Science Education Revolution, Science Digital Learning Hub, Virtual Science Learning Ecosystem, and Digital Science Education Hub. There are keywords that can be used as research recommendations, namely Artificial Intelligence, Gamification, Higher Education, Distance Learning, Learning Analytics, Data Science, and Assessment.

Keywords

Digital Learning, Science, Bibliometrics Analysis

A Bibliometric Analysis of Publications on 3D Food Printing Technology using VOSVIEWER: Malaysia View

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Abstract

The SCOPUS collection database was searched for publications relevant to 3D footprinting technology between 2019 and 2023 in Malaysia. We gathered all research papers on 3D printing in the food industry that are available on SCOPUS databases. The study provides a knowledge-domain map that identifies author collaboration networks and journal ties. This was achieved by a bibliometric analysis that may be viewed with the VOS viewer software. The study on "3D food printing technology" found similarities, including an increase during the study period and growing usage of "3D food printing technology." The findings offer a basic understanding of the study of 3D food printing technology.

Keywords

3D Food Print, Trends, Bibliometric Analysis, VOS Viewer

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CB-SEM Modelling on Work Coordination and Enterprise Risk Management towards Performance of Malaysian Public Higher Education

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Abstract

This research investigates the intricate relationship between work coordination, enterprise risk management (ERM), and financial performance of Malaysian Public Higher Education (PHE). Recognizing the unique challenges faced by academic institutions, the study employs Covariance-Based Structural Equation Modeling (CB-SEM) as a comprehensive analytical framework to unravel the nuanced interplay between these critical dimensions. The primary objective is to understand how effective work coordination practices and robust enterprise risk management strategies contribute to the overall financial performance of Malaysian PHE. Through an in-depth examination of organizational structures, communication channels, and risk mitigation protocols, the research aims to develop a model that will enhance the financial performance of Malaysian PHE. The CB-SEM approach allows for a holistic exploration of the latent variables involved, offering insights into the direct and indirect relationships among work coordination, enterprise risk management, and financial performance. By incorporating diverse indicators of performance, including income generated from research projects, consultancies, public funding, private funding, commercialization and from program offered, the study aims to provide a nuanced understanding of the mechanisms driving success in the context of Malaysian PHE. The findings of this research are expected to contribute valuable insights to university administrators, risk practitioners, policymakers, and scholars in the field of higher education sector. By shedding light on the intricate dynamics between work coordination, enterprise risk management, and performance, the study endeavors to offer practical recommendations for optimizing organizational strategies and fostering a conducive environment for academic excellence in Malaysian PHE.

Keywords

CB-SEM Modelling, Malaysian Public Higher Education (PHE)

Factors Influencing the Use of E-Assessment in Engineering Education During Emergency Remote Teaching: A Qualitative Approach

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Abstract

The study aims to investigate engineering education instructors' observations and experiences with e-assessment challenges during the COVID-19 pandemic's Emergency Remote Teaching (ERT) period. The study employed a focus group discussion method with a criterion sample of seven instructors from engineering education in a higher education institution. The data gathered was transcribed and analyzed using thematic analysis, which revealed four major themes: benefits, challenges, different types of remote assessment, and recommendations and guidelines for future better practice. The study's findings offer insights into the challenges faced by engineering education instructors during the ERT period, as well as recommendations for future better e-assessment practices.

Keywords

E-assessment, Factors, Challenges, Online Engineering Education, ERT, COVID-19

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The Effects of Different VR Designs for An Instructional Lesson on Students Performance and Motivation: A Design-Based Research

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Abstract

The purpose of this study is to define design guidelines for instructional virtual reality (VR) and examine how three different VR designs affect students' motivation and performance. By filling in the gaps with empirical data on different VR designs, the study aims to find the best method for incorporating VR into learning environments. Using a design-based research methodology, the study aims to provide recommendations for the best virtual reality learning environments. These recommendations were developed by the researchers using a combination of extensive literature analysis and focus group discussions.

Pre-post tests measuring performance and the modified Reduced Instructional Materials Motivation Survey (RIMMS) measuring motivation were used to evaluate the effects of various VR designs. 29 students were included in the sample, and they were split up into three instructional VR groups. One of the main results of the study is the development of two instruments to assess virtual reality instruction. The findings revealed no significant differences among the three student groups in terms of the performance variable. However, notable differences were observed in the motivation variable. These newly developed instruments hold potential for global use in both the development and evaluation of instructional VR experiences. The findings of this study highlight that although students may learn identically from a variety of VR designs, their motivation levels differ depending on the design. This study emphasizes the significance of taking motivational factors into account when implementing virtual reality (VR) in educational contexts, acknowledging the role that motivation plays in fostering long-term and enhanced learning experiences.

Keywords

VR Designs, Design-Based Research

Investigation of Ammonia Co-firing Effects on Combustion Equipment Performance in an Existing PLN 660 MW Coal-fired Power Plant

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Abstract

In Indonesia's electricity system, coal-fired power plant (CFPP) have a vital role in meeting the primary needs of the community. On the other hand, the energy transition agenda forces PLN (State Electricity Company) to review the options available to decarbonize while maintaining the operation of the CFPP to continue operating until the end of its life. One of the hottest and newest programs in Indonesia is ammonia co-firing. Ammonia, a non-carbon fuel, has the opportunity to partially replace coal for combustion in boilers. Its application to existing boilers will certainly shift the existing operating profile, especially on the combustion side. The investigation shows that co-firing ammonia will affect the boiler performance, combustion profile and some operating equipment. The boiler efficiency becomes slightly lower with the presence of ammonia. Based on the combustion simulation results, the combustion temperature may become higher due to the additional fuel heat injected to maintain the power plant output. Some equipment, such as the capability of the draft fan, should be rechecked as this application may increase its working level. Nevertheless, initiation of ammonia co-firing is a good and interesting option to conduct decarbonization in the existing power plant.

Keywords

Ammonia, PLN 660 MW Coal-fired Power Plant, Coal, Power Plant

9 789392 105999

Traditional Cultural Display in Intangible Cultural Heritage Tourism: Attention, Emotional Arousal and Familiarity

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Abstract

Practitioners in intangible cultural heritage tourism use the display of traditional culture to attract tourists' yearning for the destination. Nonetheless, research has yet to evaluate the effects of two specific types of traditional culture displays, namely original traditional culture and innovative traditional culture. Utilizing the matching hypothesis, this study adopted a quasi-experimental design, including mixed methods, with the main goal of the study being that intangible cultural heritage tourism displays traditional culture without misleading its original meaning. This study will help enhance the understanding of the efficacy and existing concepts of traditional cultural display in revitalizing intangible cultural heritage tourism, and provide theoretical guidance for intangible cultural heritage tourism management organizers.

Keywords

Traditional Cultural Display, Visual Attention, Emotional Arousal, Scenery Familiarity, Matching Hypothesis

Empowering Farming Communities through Modern Approaches: A Study on the Impact of the Tertiary Irrigation Network Rehabilitation Program in West Java

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Abstract

The aim of this study is to highlight the significant enhancement in the autonomy of farm groups in West Java due to the implementation of contemporary wisdom-based strategies.

Examining the impact of the Tertiary Irrigation Network Rehabilitation Program on the autonomy of farm groups in West Java. The method involves both qualitative and quantitative approaches. Qualitative data could be gathered through interviews or surveys with the farmers and government officials involved in the program. This would provide insights into the collaboration between water-user farmer associations and the government, and how this has influenced the autonomy of the farming systems. Quantitative data could be collected on the changes in cropping patterns and the increase in the cropping index as a result of the program.

This resulted in changes in cropping patterns and an increase in the cropping index, contributing to the overall goal of increasing food crop production. The success of these strategies is also attributed to the collaboration between water-user farmer associations and the government.

Keywords

Autonomy Of Farm, Irrigation, Cropping Patterns, Water -User Farmers

9 789392 105999

Parts Supplier Selection for Smart-key Development Using Analytic-Hierarchy Process

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Abstract

As automotive technology evolves at a very fast pace and the global supply chain network changes from time to time, it is necessary to have innovative strategies and solutions in product development, and feasible and accurate processes in automotive parts manufacturing. One of the most crucial stages in product development is the selection of suppliers which will be the partners in the development of the product. It is important to establish a mutually beneficial business-to-business relationship with the supplier that is most reliable, most efficient, and most trustworthy. There are already different types of mathematical methodologies in supplier selection during supplier selection, but one of the most common types is the Analytical-Hierarchy Process (AHP). This study used AHP as a multi-criterion decision method in evaluating suppliers that will produce materials and parts for the smart-key fob that is currently under development for a Japanese car model. The best among the four suppliers had been chosen based on the criteria set by the company, and its corresponding weights established from the response of the project team leader through a Likert-type questionnaire.

Keywords

Parts Supplier, Smart-key Development, Analytic-Hierarchy

Portfolio Selection on Bank Corporations in the Philippines using Fuzzy-Analytic Network Process

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Abstract

Majority of the investors found financial corporations as option on investing stocks, given its strengths particularly in being involve on banking regulation policies, and being diverse in functions such as commercial banking, investment banking and insurance. However, the volatility of banks in external factors because of their being a cyclical type of business and sensitive to economic recessions made investing in banking stocks risky. These risks are mostly experienced during the COVID-19 pandemic period where economies had been closed due to lockdowns, and as we are on our way to the post-pandemic stage, there should be a shift in choosing right portfolio investment to gain higher returns. The objective of this study is to analyze the financial performance before and during the quarantine period of 16 banking corporations listed on Philippine Stock Exchange (PSEi) and choose one with best returns. This paper uses the Fuzzy Analytic Network Process approach to rank banking portfolios. Profitability, growth, and market are used as criteria in ranking portfolios in FANP approach. For the criteria and its corresponding importance ranking, we will use the data results from the FANP portfolio selection study conducted.

Keywords

Banking System, Portfolio Evaluation, COVID- 19, FANP, Portfolio Selection Ranking

9 789392 105999

Deal or No Deal: Assessing Filipinos' Purchasing Decisions and their Factors toward Green-packaged Products

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Abstract

Packaging primarily uses plastics, papers, and other materials, which if not handled properly, impacts the environment significantly as packaging waste is considered a major contributor to marine litter and plastic pollution according to SEA circular. Currently, many businesses and firms exert effort to create packaging designs that mitigate these environmental concerns hence, the introduction of green packaging. Green packaging pertains to packaging which is manufactured using materials and processes that alleviate energy use and lessen or eliminate the harmful bearings of packaging to the environment. With this, since businesses recently start to engineer green packaging to their products, the study can contribute to businesses by giving them ideas on what factors affect the decision of consumers to buy a green-packaged product which can lead to patronization of consumers to green-packaged products thus mitigating the environmental concerns associated with packaging. The study aims to assess Filipino consumers purchasing decisions and determine their relationship with the sample demographics (age, sex, type of residence, education, and income). Through the use of an online survey of 207 Filipinos residing in Luzon, the study determined which purchasing factors affect Filipinos buying decisions toward green-packaged products. It was found out that the consumers' concern for the environment is the top factor succeeded by price. Moreover, through ANOVA, it was revealed that there's a significant relationship between age and the purchasing factors. Meanwhile, the respondents' sex, type of residence, educational attainment, and income class do not have a significant relationship with the purchasing factors.

Keywords

Green Packaging, Purchasing Decisions, Influencing Factors, ANOVA, Green-Packaged Products

A Comprehensive Survey on Reconfigurable FPGA Architectures, Types, and Applications

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Abstract

Reconfigurable computing stands as a promising paradigm, notably showcased in the development of devices like field-programmable gate arrays (FPGAs). This study elucidates the reconfigurable architecture inherent in FPGAs and explores their diverse types. FPGAs emerge as the predominant high-speed computing structures within the realm of reconfigurable computing. The research underscores the architectural intricacies of FPGAs, emphasizing the numerous advantages that reconfigurable computing designs offer over conventional application-specific integrated circuits (ASIC), enabling superior performance tailored to specific applications. The survey delves comprehensively into the fine-grained and coarse-grained architectures, elucidating their highlights and challenges. Notably, FPGAs have evolved to support partial reconfiguration over the years, and this review encompasses the techniques associated with partial reconfiguration and the manifold applications of reconfigurability. By unraveling the complexities of reconfigurable computing, this paper contributes to a nuanced understanding of FPGAs and their role in achieving optimal performance for diverse applications, presenting a comprehensive exploration of the field's architecture, types, advantages, challenges, and emerging techniques.

Keywords

Field-Programmable Gate Arrays (FPGAs), Application-Specific Integrated Circuits (ASIC)

9 789392 105999

Utilization of Weather Radar for Flood Distribution Mapping in Tallo Watershed

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Abstract

Floods are natural disasters that often occur every rainy season. This disaster not only caused property loss, but also caused loss of life. In flood mitigation efforts, mapping of areas that are vulnerable and at risk of flooding is needed. One technique used to identify areas prone to flooding is the use of radar data. Modeling flood events as an important part of the flood early warning system in the Tallo watershed requires input rainfall data with adequate spatial resolution. An alternative that can be done is to use radar rainfall data which has much better spatial and temporal resolution than ARR. In this research, a flood event simulation study was carried out based on the distribution of rainfall over a certain time. Modeling uses the RRI model with data input from radar data, resulting in better flood predictions regarding inundation height and flood distribution. Spatial modeling of floods in the Tallo watershed when the floods occur in 2022 can represent the real impacts that will hit Manggala, Tallo, Tamalanrea and Biringkanaya sub-districts and its surroundings. Inundation and river discharge are shown with an accuracy of 10 minutes by the model and can show when peak flooding events occur.

Keywords

Weather Radar, Flood, RRI, Tallo Watershed

Evaluation of Power Wheeling Proposed Concept in Indonesia

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Abstract

The power wheeling concept is an approach to collectively utilize the electricity network through an open access to electricity transmission and distribution networks. Nowadays, there are so many pros and cons about this concept especially between stated owned utility company (PLN) and Private Sector. In the other hand, the government has target to achieve more and more renewable energy penetration which is become very challenges to accomplished. Not only the double, but also multiple increasing of RE implementation specifically in energy sector. However, the limitation of the PLN to invest and build their own generation appeared as big obstacles to do it. It can be denied that private sector participation is one of success key. The optimum solution between power capacity that can be transmitted, and distance of transmission line become two main considerations to determine the power wheeling tariff. By simulating these two, it can be obtained that the power wheeling economically viable to implement in Indonesia which has steepness system more than 150 MW and distance in range 50-300 km. This concept has advantages for private sector to reduce to cost without build the transmission lines and can supply their own demand, while in PLN side, it can support renewable energy penetration, additional income by rent the transmission line to private but it still under control because the maximum power has been limited.

Keywords

Power Wheeling, Economically Viable, Renewable Energy Penetration

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Facility Management Improvement of the Sump Pit Drainage System through Knowledge Based Assessment of its Maintainability

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Abstract

The sump pit drainage system gathers excess water in the basement area of a building avoiding damage to important facilities and assets that may be affected. The system is important to pump out the excess water through a discharge line and directed to the drainage area outside the building eliminating the risk of flooding. The drainage system facility is in a five-story residential condominium with a basement parking with a sump pit having a volume of 125 m3. The sump pit is composed of three submersible pumps responsible for discharging the water from the pit. It is important for the facility to have proper management as the groundwater of the building may rise leading to basement flooding, especially during heavy storms. In response to the possible challenges in the maintainability of the system, the study develops a theoretical framework to provide recommendations, effective practices, and solutions to prevent the breakdown of the system. A knowledge-based framework with underlying recommendations that would improve the management of defects in the drainage system was structured. The study will improve the maintainability of the drainage system of residential building setup based on the knowledge providing reliable guidelines for the facility management of the building.

Keywords

Sump Pit Drainage System

Understanding Job Satisfaction and Its Influences in Nigerian Government Firms: A Systematic Literature Review

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Abstract

Job satisfaction is seen as a critical factor in employee performance. This article focuses on a thorough review of the literature to identify the numerous elements that influence job satisfaction and assess their relative importance in shaping employee performance in government-owned firms. The existing conceptualizations of job satisfaction in the literature are diverse, reflecting the broadness of critical perspectives on the subject. Job satisfaction is conceptualized in various ways in the existing literature, emphasizing the intricacy of key views on the subject. A systematic literature review entailed the following steps: (a) identifying databases and a set of publications; (b) selecting articles and creating a database; and (c) doing bibliometric analysis, content analysis, and verifying the relevance of results to future studies. The review included publications from 2013 through 2023 and encompassed psychology, sociology, economics, and management science. Examining existing theoretical writings and practical tests reveals psychological and methodological flaws. Despite countless critical attempts to define exactly what constitutes job satisfaction, no clear and obvious definition has emerged. Similarly, there is a lack of crucial consensus among academics about what factors contribute to job satisfaction, resulting in diverse research methodologies. However, despite the growing popularity of job satisfaction studies, several of these characteristics have yet to be thoroughly investigated, and some research has produced inconsistent conclusions regarding the intensity of specific elements' influence on job satisfaction. Hence, this study meets that demand by doing a thorough review of the literature and showing the direction of recent research.

Keywords

Job Satisfaction, Nigerian Government

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Ethnohydrology-Based Water Conservation: A Sustainable Approach to Organic Rice Farming

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Abstract

This study explores the application of ethnohydrology, a culturally informed understanding of water, as a strategy for water conservation in organic rice farming businesses. Recognizing the critical role of water in rice cultivation, this study investigates how indigenous knowledge and practices can contribute to efficient water use, thereby supporting the sustainability of organic rice farming. This study underscores the potential of ethnohydrology to bridge traditional wisdom and modern conservation techniques, offering insights for other agricultural contexts. The findings aim to inform policy-making and agricultural practices to foster a sustainable future for organic farming businesses despite increasing water scarcity. The results indicate that organic farming is one of the best methods that not only reduces the deterioration of water quality but also decreases food toxicity. Further research is needed to determine the productivity and emissions, such as methane, nitrite, and carbon dioxide, of organic rice.

Keywords

Ethnohydrology, Water Conservation, Organic Rice Farming

Weapon Recognition in CCTV Videos: Deep Learning Solutions for Rapid Threat Identification

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Abstract

The study offers a new dataset and method for real-time weapon identification in surveillance video using deep learning, which can identify weapons in surveillance video cameras or smart IP cameras and give real-time notifications to security staff. The paper discusses the challenges of detecting weapons in surveillance videos, including the variability of the pose and appearance of the hand weapons and the complexity of the background scenes. The proposed model uses a sliding window process and feature selection to accurately identify weapons in surveillance videos. The framework relies on the YOLOv8 algorithm and the PELSF-DCNN classifier, augmented for feature selection via the CSBO method. The suggested system demonstrates exceptional accuracy and minimal false positive rates by utilizing advanced deep-learning techniques and motion estimates. The authors test their methodology on a new dataset of video surveillance photos including hand weapons and show that it beats state-of-the-art algorithms in terms of detection accuracy and speed. They compare R-CNN and R-FCN real-time object detection algorithms with feature extractors VGG and ResNet. They also look at the implementation of transfer learning and data augmentation methods to increase model accuracy. The paper proposes a novel blending pose method to augment the training data and improve the robustness of the detection model to pose variations. The authors discuss the dataset folder structure, XML annotation format, and the edge/cloud framework used to deploy the system in the real world. They provide deep insight into the research findings and discuss the limitations and potential drawbacks of using this type of technology for surveillance. To identify potential instances of violence and deter criminal activities, it is recommended that the proposed system be integrated with existing surveillance cameras or intelligent IP cameras. The authors conclude their discourse with prospective future endeavors in this domain, including the utilization of increasingly advanced deep learning algorithms and the integration of supplementary varieties of sensors and data sources to enhance the precision and effectiveness of the system. Overall, this research provides insights into the potential of deep learning for improving public safety and security. The proposed system can be applied to real-time surveillance videos to detect potential violent situations and prevent crimes. The study emphasizes the need to establish effective solutions to reduce weapon violence and offers a potential way to accomplish this aim.

Keywords

Weapon Detection, Deep Learning, Object Detection, Artificial Intelligence, Computer Vision

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Reduction of Microarray Data Dimensions to Enhance Performance of Naïve Bayes in Classification

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Abstract

According to data Global Burden of Cancer Survey (Globocan) by World Health Organization (WHO) in 2020, the total number of cancers in Indonesia was 396,914 and the total number of deaths was 234,511. To reduce these cases, early diagnosis is still the key. Utilization of microarray technology that captures gene expression can be used to classify cancer. However, high dimensions, small sample sizes, and noise in gene expression data pose serious challenges in microarray data analysis, where these conditions can give rise to curse of dimensionality problems. So dimension reduction becomes very important and sensitive to achieve satisfactory classification performance. Therefore, we propose PCA method for dimensionality reduction before the data is classified with Naïve Bayes. The proposed method shows increase in the performance of Naïve Bayes classifier where the accuracy achieved is 92.11% and the f1-score is 93.88% for ovarian cancer and for prostate cancer the accuracy is 93.54%, and the f1-score reaches 94.18%.

Keywords

Naïve Bayes, Global Burden of Cancer Survey (Globocan), World Health Organization (WHO)

Job Creation through Informal Economy in the Southeastern Part of Nigeria

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Abstract

There is a serious unemployment crisis affecting Nigerians in the southeast as well as the country as a whole. because of poor leadership. The number of people entering the labor force each year is too high, and not enough employment is created to meet this high demand, and the business sector and policy leaders are concerned about the future of work for the young people in the country due to the country's rapidly expanding population. The effects of unemployment in the southeast and throughout Nigeria are investigated in this paper. and how to use the unorganized sector to generate jobs in Nigeria and the Southeast.

It emphasizes how the government and people can work together to create jobs for the growing population by, among other things, reviewing their policies regarding the informal sector, supporting, and encouraging people to work for themselves, hosting free workshops, seminars, and programs, and placing a major emphasis on infrastructure development. On the other side, there will be increased investment and job growth in the private sector. By incorporating all of these and more into micro, small, and medium-sized businesses, unemployment will be eliminated, and by 2050, southeast Nigeria's economy will rank among the best in the area.

Keywords

Job Creation, Informal Economy, Nigeria

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Effectiveness Analysis of Water Injection into the GTD Compressor Duct in Its Various

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Abstract

The report presents the results of the authors' research using the developed CompressorWI program to assess the influence of water injection conditions into the compressor path of gas turbine engines and power plants on their parameters and characteristics.

The interest in this topic is given the rise to the fact that, as shown by the authors of these works, as well as the results of numerical modeling by the authors of this work on the example of GTD AL-21 14-stage axial compressor, performed using the developed program CompressorWI Visual Studio 2022, written in the C# programming language (C Sharp), water injection into the compressor duct allows you to significantly increase its effective efficiency η^*_{ef}, compression ratio π_c, and improve some of the characteristics of the GTD as a whole.

In this paper, options for water injection along the compressor duct are considered, since due to the low air temperature, moisture evaporation in the initial stages is insignificant, and the water flow itself, which usually reaches when injected for these purposes G_f=2,5-3,0%from the air flow through the compressor G_a, leads to increased hydraulic resistances.

Thus, the calculation results presented in this paper demonstrate the possibility of choosing the optimal flow rates and cross sections along the compressor duct for injecting water into the duct of GTD and GTU compressors, depending on the purpose and the task being solved. At the same time, injection at the compressor inlet is the least effective due to the low evaporation rate in the initial stages and increased hydraulic resistances.

Keywords

Water Injection, GTD Compressor Duct, CompressorWI

Looking Beyond Race and Sex, Toni Morrison's Beloved A Culture and Legacy

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Abstract

The present paper portrays the black Nobel laureate, Toni Morrison's determination to transform the black world into a chronicle which is their own, a culture which survived all odds and became a legacy to be conveyed to the imminent generation. In this paper, we find the endeavour of the visionary black writer, to embellish their history and preserve it in the dominant white world in spite of all diversities. The paper enters the intricate life of 19th century American society through the novel Beloved and reveals the struggle of the characters, for self-esteem and agency, where they failed to claim the ownership of their own offspring and self. The paper tries to confront every sphere of terror, disgust, physical and emotional scars, trauma of being black and woman, and the mental suffering when they couldn't free themselves from the times of yore. The paper divulges the cruel realities that tormented the female characters in the struggle against racial and sexual exploitations from a feminine perspective. The work disguises the details of white culture, people and their society. It concentrates on the desires of survival, healing of black souls through their culture and heritage.

Keywords

Culture And Legacy, Black Nobel Laureate, Toni Morrison

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The Developments, Perspectives and Problems of Corporate Governance in India

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Abstract

In the business world, corporate governance is a broad concept. One of the best systems for directing and managing corporate organisations is corporate governance. Owners of companies only hold ownership rights; the boards of directors are given administrative authority. Owners do not manage or run the organisation. They manage the company while taking the interests of shareholders and other stakeholders into consideration. The economic and social objectives are coordinated through corporate governance. It entails encouraging adherence to the letter and spirit of ethical behaviour. Corporate governance is a summary of the laws and ordinances that apply to the managers of incorporated businesses. They are the ones who consent to shoulder accountability to shareholders. No business entity can endure for a long period in the corporate world without corporate governance. Corporate governance is currently receiving a lot of attention from all organisations and corporations. Budgets for corporate governance are prepared separately in some firms, which makes all the rules, regulations, and procedures on corporate governance obvious to all associated parties. Indian corporations are becoming aware of the necessity of starting solid corporate governance processes in this age of globalisation in order to build a comprehensive enterprise value, which cannot be achieved quickly. Despite this, India consistently ranks well in terms of corporate governance regulations.

Keywords

Corporate, Governance, Regulations, Sustainable, Development, Stakeholder

Gait-Based Human Activity Recognition Using Efficient Sensor Fusion, Deep Learning Approach

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Abstract

Human activity recognition is an important area of computer vision research. Its applications include surveillance systems, patient monitoring systems, and a variety of systems that involve interactions between persons and electronic devices such as human-computer interfaces. Most of these applications require an automated recognition of high-level activities, composed of multiple simple (or atomic) actions of persons. A novel feature selection approach is then proposed in order to select a subset of discriminant features, construct an online activity recognizer with better generalization ability, and reduce the smartphone power consumption. Experimental results on a publicly available data set show that the fusion of both accelerometer and gyroscope data contributes to obtain better recognition performance than that of using single source data, and that the proposed feature selector outperforms three other comparative approaches in terms of four performance measures. Such activity profiling systems are dependent on classification algorithms which can effectively interpret body-worn sensor data and identify different activities. the key research challenges that human activity recognition shares with general pattern recognition and identify those challenges that are specific to human activity recognition. The aim of paper is to explore real life applications like contactless employee recognition system using gait analysis which uses sensor data as base to identify employees based on their gait movement. This requires understanding the dimensions of sensor data and its application exploring other potential real-life applications and optimizing the methodology are also one of the core objectives.

Keywords

Machine Learning, Deep Learning, CNN, CNN-LSTM, Human Acitvity Recognition, UCI

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Optimal Site Selection for Solar Photovoltaic Power Plant on Bali Province using AHP & GIS

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Abstract

Energy has a very strategic position in achieving national development goals. Indonesia government has established the National Energy General Plan called "RUEN" though Presidential Regulation No. 22 of 2017, which is a reference for energy development in Indonesia. The RUEN states that Bali Province is set to achieve a Solar PV's Power Plant capacity is 108 MW in 2025, which has potential range from 3,2 – 5,8 kWh/m2/day. To support the acceleration of Solar PV Power Plant development in Province Bali, site selection reference use 7 (seven) criteria to support Solar PV Power Plant development decision for optimum operation. Site selection is based on the weighted overlay method that runs on ArcGIS and obtained using the Analytical Hierarchy Process (AHP) method. Then the process stage uses the model builder to obtain an optimum site selection for PV Power Plant in Bali Province.

Keywords

Solar Photovoltaic Power Plant, Bali, AHP & GIS

Geospatial Information Data Sharing Analysis of Regional Geospatial Information Infrastructure (A Case Study In Sampang Regency)

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Abstract

The Geospatial Information Infrastructure (GGI) / Spatial Data Infrastructure (SDI) developed to facilitate the geospatial data sharing. Local governments play an important role in formulating GGI through regional government institutions as data producers. This paper examines the current state of Geospatial Information Infrastructure (GGI) in Sampang Regeny, East Java, Indonesia. The practice of spatial data sharing is not optimally implemented, therefore a readiness evaluation of each regional government organization and an analysis of factors that affect the spatial data sharing need to be conducted. This research aims to determine the readiness level of each regional government organization to support spatial data sharing activities and to study factors that affect spatial data sharing. An interview and a questionnaire were used in this study as part of a sequential exploratory approach. A total of 30 questionnaires were distributed to staff of regional government organization in Sampang Regency. Interview data were measured by content analysis, while questionnaire data were measured by partial least squares analysis. In the structural model analysis, Smart PLS4 was used to choose the fit items based on validity and reliability measurements. According to the hypothesis measurement, the acceptance evaluation of GGI/ SDI to facilitate data sharing activities in Sampang Regency has positive contribution and significant affect to the actual system use of geoportal. Meanwhile, all it's Regional Working Units are ready to support the implementation of regional GGI/SDI.

Keywords

Geospatial Information Infrastructure (GGI), Spatial Data Infrastructure (SDI), Geospatial Information Infrastructure (GGI), Sampang Regeny, Indonesia

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Relevance of Steganography in Present Context

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Abstract

The volume and variety of information that must be securely transmitted across a range of media is constantly growing, making it necessary to define security specifications at different levels of medium access. Since the advent of Information Communication Technology, it has become even more complicated to retain the privacy of information while sending it across the public network. Numerous methods have been developed and are being applied for this purpose. Hackers are also working side by side to crack the methods used to violate privacy. Encryption offers some protection however, it is not intended to conceal the communication path itself. Information hiding also known as Steganography helps in concealing the communication channel itself. It is a technique used to conceal information under digital cover so that its existence remains unknown to the world. The purpose of this paper is to highlight the importance of the steganographic methods used in data security information processing algorithms in present scenario. The paper mainly addresses the issue of information security.

Keywords

Encryption, Steganography, Digital cover, Information Hiding

Analysing The Crop Production using Decision Tree Algorithm in Comparison with The Random Forests

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Abstract

Aim: The aim of this study was to compare the efficacy of Decision Trees and Random Forests in analysing crop production, specifically in the context of predicting crop yields. We sought to evaluate the performance, interpretability, and predictive power of these two machine learning approaches in real-world agricultural settings.

Materials and Methods: We collected historical agricultural data, including information on weather conditions, soil properties, and farming practices, to construct a dataset for our analysis. Decision Trees and Random Forests were implemented using established machine learning libraries. We trained both models on the dataset and rigorously assessed their performance by measuring accuracy, interpretability, and computational efficiency.

Results: Our findings revealed distinct characteristics of Decision Trees and Random Forests in the analysis of crop production. Decision Trees provided a transparent and interpretable approach, allowing for insights into the key variables influencing crop yields. In contrast, Random Forests demonstrated superior predictive accuracy, particularly in complex agricultural scenarios. They effectively captured interactions among various factors and provided more accurate yield predictions.

Conclusion: This study highlighted the trade-offs between interpretability and predictive performance when using Decision Trees and Random Forests for crop production analysis. Decision Trees are valuable for gaining insights into the driving factors behind crop yields, while Random Forests excel in delivering accurate predictions. The choice between these methods should be made considering the specific needs and priorities of agricultural stakeholders, with a focus on either understanding the underlying dynamics or optimizing yield forecasts in agricultural decision-making processes.

Keywords

Crop production, Decision tree alogorithm, Random Forests, Agriculture, Crop yield, Data Analysis, Predictive Modelling, Agriculture sustainability, Decision Support, Agriculture Data, Comparative Analysis, Food security, Resource Management, Machine learning, Accuracy, Model Evaluation

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Deep Learning Aided Mental Health Analysis Based on Facial Expressions

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Abstract

An individual's psychological, social, and emotional well-being are all indicated by their mental health. Unnoticed mental diseases have an impact on nearly every aspect of life. Well-known social networking sites can be quite helpful in identifying these risky psychological trends. The global progression of mental illnesses might reveal people's feelings and emotions. A startling proportion of over 70% of people worldwide suffer from some form of mental illness, according to recent studies and WHO reports. However, health services have not appropriately addressed the prevalence of mental illness. Over 50% of the populace lacks enough knowledge on the subject, and those who do lack appropriate mechanisms to address it. More time is needed for the health care system to be improved, as well as improved awareness campaigns. Individuals suffering from mental health disorders need appropriate education, care, and social support. This study uses Twitter as a platform to look for trends in mental health disorders. The sentiment analysis method is used to identify various behavioral patterns in a variety of mental diseases. We offer a novel solution to the expanding issue by concentrating on the study of different illnesses utilizing the corresponding hash tags on Twitter. React is suggested as the front end using a REST API framework, and neural network algorithms such as CNN and front end application to illustrate the output are used.

Keywords

CNN, Mental Illnesses

Society 5.0 in Strategic Management Studies: A Systematic Literature Review (SLR)

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Abstract

The research abstract section should provide a brief overview of the main points discussed in the research review. This abstract of a systematic research review regarding the strategic management study of society 5.0 aims to provide an overview of the main themes, findings and implications of previous research in this area. This study focuses on conducting a systematic literature review regarding strategic management of society 5.0, following established methodology and guidelines. The research review aims to identify, study, evaluate and interpret all available research on strategic management of society 5.0 to understand the current state of knowledge in this field and identify potential research gaps. This review follows a systematic eight-step guide to conducting a literature review of information systems research. Society 5.0 is a new concept that refers to the integration of digital technology with society to overcome social challenges and improve the quality of life. Society 5.0 strategic management involves planning, coordinating, and implementing strategies to effectively utilize digital technology for the benefit of society. The abstract highlights the main objectives of a systematic research review regarding the strategic management of Society 5.0, including identification of research questions, selection and analysis of relevant research articles, and synthesis of qualitative findings.

Keywords

Society 5.0, Strategic Management, Systematic Literature Review, Research Gaps, Information Systems Research

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An Inventory Application of the Property and Supply for Ilocos Sur Polytechnic State College

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Abstract

The inventory management system encompasses a combination of technological advancements, including hardware and software components, as well as processes and methodologies that facilitate the monitoring and maintenance of stocked items. These items may consist of organizational assets, raw materials and supplies, or finished products ready for distribution to retailers or end consumers. An inventory management system encompasses a framework for identifying each inventory item and its relevant information, such as barcode labels or asset tags. It also includes hardware devices for scanning barcode labels, such as handheld barcode scanners or smartphones equipped with barcode scanning applications. The board programming encompasses various functionalities, including the centralization of stock information, data analysis capabilities, report generation, future demand forecasting, and more. Additionally, it encompasses processes and strategies related to branding, documentation, and reporting. The study was delimited to the participants selected for the usability assessment consists of the personnel belonging to the property and supplies unit of ISPSC Main Campus. Design Thinking framework was utilized by the researcher to hold together the data used to carry out the study. Furthermore, the Agile methodology was used for software development and Software Usability Scale (SUS) was used to evaluate the acceptability test of the developed system. The results of the study showed that the developed software gained a usability test of Strongly Agree which means that the application used for inventory management was helpful in the ISPSC Main Campus.

Keywords

Inventory Application, Ilocos Sur Polytechnic State College

A Graduate Tracer with Analytics for Ilocos Sur Polytechnic State College (ISPSC)

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Abstract

Graduate Tracer Studies (GTS) have been a recognizable practice worldwide as they allow better understanding between the connection of education and work. They are important especially to higher education institutions as it enabled them to accommodate changes in the society especially the demands of the actual and potential employers, through evaluation and constant review of their curricula. However, in Ilocos Sur Polytechnic State College – Main Campus, tracers used social media groups such as Facebook groups and Google Forms in conducting graduate employability tracing which sometimes leads to issues of representativeness, time-consuming, and data reliability. The goal of this study is to develop a Graduate Tracer System for Ilocos Sur Polytechnic State College with Analytics to address the issues of using aforementioned tools. The study was delimited to BS Computer Science graduates of ISPSC Main Campus from 2015-2023. Design Thinking framework was utilized by the researcher to hold together the data used to carry out the study. Furthermore, the Agile methodology was used for software development and Software Usability Scale (SUS) was used to evaluate the acceptability test of the developed system. The results of the study showed that the developed software gained a usability test of Strongly Agree which means that the application used for tracking and helpful in the graduate employability tracing of ISPSC.

Keywords

Graduate Tracer, Ilocos Sur Polytechnic State College (ISPSC)

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