ICASETM

ICASETM 2024

7th International Conference on Applied Sciences, Engineering, Technology and Management

Date & Venue

21st-22nd October, 2024
Jakarta, Indonesia

Organized by

Lakidende University, Indonesia
Poornima College of Engineering, Jaipur, India &
IFERP Academy - Indonesia Society

7th International Conference on Applied Sciences, Engineering, Technology and Management (ICASTEM)
Jakarta, Indonesia

ISBN 978-81-970508-2-4

This edition is produced in India and is intended for worldwide distribution.
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Strategies for Sustainable Growth

Preface

We are delighted to extend a warm welcome to all participants attending "7th International Conference on Advanced Science, Education, Social Science, Technology, and Management (ICASETM-2024)" organized by IFERP Academy on October 21st-22nd, 2024 at Ramada by Aston Priority Simatupang Hotel & Conference Center, South Jakarta, Indonesia. 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 Science, Education, Social Science, Technology, and Management. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for "7th ICASETM-2024" contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of Science, Education, Social Science, Technology, and Management. 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 Science, Education, Social Science, Technology, and Management 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 "7th ICASETM-2024". Since May 2024, the Organizing Committees have received more than 100+ manuscript papers, covering all aspects of Science, Education, Social Science, Technology, and Management . After review, approximately 50+ papers were selected for inclusion in the proceedings of "7th ICASETM-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 7th ICASETM 2024

The 7th International Conference on Advanced Science, Education, Social Science, Technology, and Management (ICASETM-2024) stands as a prominent gathering scheduled for 21st and 22nd of October in Jakarta, Indonesia. This conference serves as a nexus for academics, researchers, and educators worldwide, fostering the exchange of pioneering research and innovative methodologies across diverse educational spheres. ICASETM-2024 aims to facilitate collaborative discussions, address contemporary educational challenges, and explore emerging trends to drive transformative changes in education. With an emphasis on practical applications and impactful insights, this event endeavors to shape the future of teaching practices and educational policies on a global scale.

Objective of the 7th ICASETM

The primary objective of ICASETM 2024 is to provide an engaging platform and immersive learning experience to engineers to help shape the future of the fields of applied science, technology, and engineering. We aim to promote the research throughout the network at the international level. This engineering conference will cover a wide range of topics in the fields of science, technology, and engineering for sustainable growth.

Engage in informative group discussions, share your knowledge, and gain insights that will shape the future of technology. Also, it will offer you an opportunity to publish your work in prestigious journals such as Scopus, DOAJ, Web of Science, etc. Identify new research opportunities and potential partners to take your career to the next level.

Purpose of the 7th ICASETM

ICASETM-2024 aims to be an excellent conference to discuss the current progress and modern advances in the various fields of Engineering, Technology, and Management. It provides a platform for scholars, scientists, engineers, and students from universities and industries all over the world to present ongoing research to promote sustainable growth. Attending this conference would help you to sharpen your skills and refine your ideas using novel approaches by meeting with peers and contemporaries.

You can attend this conference in person or virtually, depending upon your convenience. Also, this conference allows you to attend it as an author, exhibitor, or listener. Participants will also be allowed to interact with experts and high-level representatives and share opinions and research outcomes with them. We are looking forward to meeting you at ICASETM-2024 for an exciting and productive experience!

About IFERP

IFERP Academy is a non-profit professional association meant for research and development in the fields of Engineering, Science, & Technology. With a global presence, IFERP is committed to advancing knowledge across diverse disciplines through international conferences, workshops, and scholarly publications. We provide help, assistance, and direction in preparation for SCI and SCIE journal publishing. These journals undergo a rigorous peer-review process to ensure quality publication. IFERP has established robust scientific, academic, and industry networks throughout Asia, the Middle East, and Europe.

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."

Purpose of the 7th ICASETM

- 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.

Message from **Director, IFERP**

Mr. A. Siddth Kumar Chhajer
Founder & Managing Director,
IFERP, Technoarete Group, India

On behalf of IFERP & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers. The goal of the 7th International Conference on Advanced Science, Education, Social Science, Technology, and Management (ICASETM-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 Science, Education, Social Science, Technology, and Management.

This conference creates solutions in different ways and to share innovative ideas in the field of Science, Education, Social Science, Technology, and Managementx. 7th ICASETM-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.

7th ICASETM-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.

7th ICASETM-2024 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of Science, Education, Social Science, Technology, and Management.

Message from **CEO, IFERP**

Mr. Rudra Bhanu Satpathy
Founder & CEO,
IFERP, Technoarete Group, India

IFERP is hosting the 7th International Conference on Advanced Science, Education, Social Science, Technology, and Management (ICASETM-2024) in month of October, 2024. The main objective of 7th ICASETM-2024 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions.

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

About **Keynote Speakers**

Dr. Hoe Han Goh

Deputy Director of INBIOSIS,
Universiti Kebangsaan Malaysia, Malaysia

Associate Professor Dr Goh is a plant molecular biologist who obtained his PhD from the University of Sheffield, United Kingdom in 2011 before starting his first academic position at the Institute of Systems Biology, Universiti Kebangsaan Malaysia. Upon joining INBIOSIS, he pioneered the Plant Functional Genomics Research Group focusing on the molecular exploration of tropical plants and crop improvement using functional genomics approaches. Some of the tropical plant species include kesum, ketum, Rafflesia, and Nepenthes pitcher plants, as well as important crops, such as mangosteen, papaya, rice, tomato, and oil palm. Fundamental understandings of the molecular aspects are crucial for their bioprospecting, industrial application, and crop improvement. Hence, the group applied multi-omics approaches, encompassing transcriptomics, proteomics, and metabolomics aided by bioinformatics analysis for a holistic understanding of biological systems. Such an integrated approach is exemplified by his studies on Nepenthes pitcher plants to uncover the effects of plant hybridisation on the molecular expression in the pitcher tissues and fluids of three local Nepenthes species. Transcriptomics analysis with sequencing was applied to describe the molecular events during Garcinia-type seed germination in mangosteen that forms a new plantlet in the absence of an embryo. His group has published over 80 indexed articles in reputable journals and seven books with a Google Scholar h-index of 19, i10-index of 39 and 1,179 citations. He also actively contributing op-eds as a columnist for New Straits Times. Dr Goh's expertise in functional genomics has been recognised as a regular invited speaker at international conferences and participating in national roundtable discussions. He also conducted various seminars and workshops on qPCR, transcriptomics, and proteomics. A total of 11 PhD and 17 MSc students have graduated from his group. He was a fully sponsored visiting researcher at the National Institute of Genetics (NIG), Japan in 2018. Dr Goh has been actively involved in institutional management. From June 2014, he was the Head of Centre for Plant Biotechnology who contributed to the commissioning of the first PC2-certified greenhouse at UKM before becoming the Head of Centre for Bioinformatics Research (2016-2019) when he established the Centre of Omics Data Analysis (CODA) as a one-stop service provider for omics analysis. He was then appointed as the Lab Manager until Sep 2020 and initiated an online consolidated lab management system and laboratory one-stop information corner (OiC) with all the lab officers. He was the Head of Quality Assurance who oversees the quality management and currently the Deputy Director who chairs the postgraduate management committee at INBIOSIS.

About **Keynote Speakers**

Dr. Hesham El-Enshasy

Director, Institute of Bioproduct Development
Faculty of Chemical and Energy Engineering
Universiti Teknologi Malaysia, Malaysia

Prof. Hesham Ali El Enshasy is Director of Institute of Bioproduct Development (IBD), one of the high center of excellence (HICoE) in Malayisa, and professor in bioprocess engineering, School of Chemical Engineering and Energy, Faculty of Engineering, University Technology Malaysia (UTM). He is also the current co-chair for Food, Pharmaceutical& Bio-Engineering Division, Division 15A, American Institute of Chemical Engineering (AIChE). Prof. El Enshasy has five technology patents/trade secrets and more than 200 publications in peer reviewed international journals, book Chapters, and books. Prof. El Enshasy and is the current series editor for Industrial Biotechnology (CRC Press, USA). He was also invited as keynote, plenary, and guest speaker in more than 70 international conferences in field of industrial biotechnology.

About **Keynote Speakers**

Dr. Mohammad Tazli Azizan

Universiti Brunei Darussalam,
Brunei

Mohammad Tazli Azizan was formerly an associate professor at Universiti Malaysia Perlis (UNIMAP) since January 2021 and ended his tenure by December 2021. He was also a former associate professor at Universiti Teknologi PETRONAS (UTP), for which he had served the institution for the past 17 years. Now, he is one of the co-founders of Skolar Malaysia, a startup that envision to be the leading provider towards scholarly educational practices in Malaysian educational landscape. Skolar Malaysia provides training and consultancy services to empower the Malaysian educators at school or higher educational institutions of becoming a better educator, and provides the students with the learning how to learn skills to nurture them as self-directed learners. In Skolar Malaysia, various pedagogical approaches, tools & technologies and assessment strategies are introduced as part of the training contents. Thus, Dr Tazli within his expertise, delivers some of these modules, as well as expanding the networking opportunities for Skolar Malaysia. He graduated his PhD in chemical engineering from Imperial College funded by Commonwealth Scholarships in 2014. He was then appointed as the Director for Center for Excellence in Teaching and Learning (CETaL) at UTP, championing the student-centered learning (SCL) pedagogy initiatives at the institution from 2014-2019. He was also appointed as one of the National Education Policy Reform Taskforce members from October 2018 until April 2019, serving the former education minister. In 2019, he was also seconded to Perak ICT & Multimedia GLC, Digital Perak as the Chief Executive Officer for 9 months. Previously, as the associate professor, he is passionate in doing research related to nurturing values and deep learning in engineering education via different SCL approaches. He has also deep interest in doing research on catalytic reaction engineering, biomass development, and the production of biofuel & biochemical. Another interesting area that is very closed to his heart is essential oils, because he believes in using essential oils, it can help to promote general physical and emotional wellness, especially to him as the educator.

About **Keynote Speakers**

Dr. Jacob F N Dethan

Vice Rector for Student Affairs and Cooperation, Universitas Buddhi Dharma, Indonesia

Dr. Jacob Febryadi Nithanel Dethan is Vice-Rector for Student Affairs and Cooperation at Universitas Buddhi Dharma, Tangerang. For his current research project on mechanical engineering at Cornell University, he is looking at advancing clean energy through enhanced hydrogen storage systems. Dr. Jacob earned his bachelor's degree from Universitas Nusa Cendana in electrical engineering, his master's from the University of Southern Queensland in power engineering, and his PhD from Monash University in mechanical engineering.

About **Keynote Speakers**

Mr. Indra Charismiadji

Executive Director, Center for Education Regulations and Development Analysis (CERDAS), Indonesia

Indra Charismiadji is a prominent Indonesian educator specializing in 21st Century Learning, also known as Education 4.0. Frequently featured in national media, he was honored with the "Indonesian Education Award" by the Indonesian Teachers Association (IGI) in 2018. Born in Bandung, Indonesia, 44 years ago, Indra studied finance and marketing at the University of Toledo and Dana University in the USA, working for multinational companies like Merrill Lynch before returning to Indonesia in 2002. He pioneered Computer-Assisted Language Learning (CALL) in Indonesian schools and now serves as the Executive Director of the Center for Education Regulations and Development Analysis (CERDAS). He also holds several key roles, including Director of Education for VOX Populi Institute Indonesia, and contributes to various educational organizations. His current focus includes developing STEAM education, Higher Order Thinking Skills (HOTS), and Computational Thinking.

About **Keynote Speakers**

Mr. Sudeep Palekar
Director of Education
Saint Peter's School, Jakarta, Indonesia

Mr. Sudeep Palekar, Director of Education at Saint Peter's School in Jakarta, Indonesia, brings extensive experience in academic administration, curriculum development, and faculty leadership. Beginning his career as a Mathematics teacher, he has since taken on leadership roles that involve managing both the strategic and day-to-day operations of academic programs. His ability to align educational initiatives with institutional goals ensures that programs evolve to meet the needs of both students and the ever-changing educational landscape.

Throughout his career, Mr. Palekar has demonstrated a strong commitment to fostering a collaborative learning environment, enhancing academic rigor, promoting innovative teaching methods, and improving student engagement. He is passionate about mentoring faculty, supporting their professional development, and helping students navigate their academic journeys to achieve success. With a deep commitment to advancing the school's mission, Mr. Palekar is excited to bring his leadership skills, vision for education, and passion for student achievement to new opportunities.

About **Keynote Speakers**

Dr. Tan Lay Hong

Senior Lecturer, Department of Technology Management, Faculty of Technology Management &Technopreneurship (FPTT), Malaysia

Dr. Tan Lay Hong currently holds the position of Senior Lecturer at the Faculty of Technology Management and Technopreneurship at Universiti Teknikal Malaysia Melaka (UTeM), Malaysia. She completed her doctoral studies at the Faculty of Technology Management and Technoentrepreneurship at UTeM. Her fields of expertise include Service Marketing, Service Quality, Quality Management, Technology Management and Sustainable Management. In addition to her academic pursuits, Dr. Tan has accumulated several years of lecturing experience at various colleges and prestigious universities. Additionally, Dr. Tan has gained extensive industrial experience, particularly in the food manufacturing sector. Her expertise in this domain demonstrated her practical knowledge of the industry and its associated challenges. This experience likely allows her to provide valuable insights into her students and enrich her teaching with real-world examples. Furthermore, Dr. Tan's involvement in government projects highlights her ability to engage in public-sector initiatives. By focusing on these projects, they are likely to gain a comprehensive understanding of government processes and the challenges and opportunities they present. This experience positions her as a well-rounded professional who can contribute not only to academia, but also to broader societal development.

About **Keynote Speakers**

Dr. Mahesh Bundele

Director

Poornima College of Engineering, India

Dr. Mahesh Bundele has completed his Bachelor's degree in Electronics and Power in 1986 from Nagpur University and immediately joined as Lecturer in Electronics at Babasaheb Naik College of Engineering Pusad, Yavatmal District. He did his Master's in Electrical Power System from Amravati University in 1990 and was appointed at the post of Assistant Professor in Electrical Engineering in the same Institute in the year 1993. He was promoted to the post of Professor and Head of Computer Science Engineering & Information Technology in August 2006. He did his doctoral degree from Amaravati University in Computer Science & Engineering with a topic "Design and Implementation of Wearable Computing System for the Prevention of Road Accidents". While working he has handled various portfolios related to design and development of curriculum, Design and execution of laboratories, electrical installations including substation design & erection, street lights etc. He has worked on various Wi-Fi/ Wi-Max based system designs and implementations for college and Pusad city villages. He has guided many research projects at UG and PG level on various applications in Electrical, Electronics & Computer Sciences. He has designed and executed various LT & HT electrical installations. He was also appointed as Principal of Babsaheb Naik College of Engineering, Pusad from March 2011. He has worked in various capacities such as, member Board of Studies, Chief-Valuation officer etc at University level. He has also worked for getting ISI to Krishak Motor pumps at Amravati. He has visited US, UK, China and Malaysia for research presentations. He has worked as Dean R&D at Poornima University, Jaipur during 2011- 2018. From 1st September 2018, he is working as Principal and Director of Poornima College of Engineering, Jaipur. While working at Poornima University, he has established unique R&D processes for Masters and Doctoral programmes. He also established and executed rules, policies and regulations in this regard. At Poornima College of Engineering he has established unique teaching-learning processes and implemented Outcome Based Education system in the Institute. He has delivered many invited talks and has been on advisory committees of IEEE International Conferences. He has published more than 50 research papers in National and International conferences and journals. He is senior member of IEEE, Life member of ISTE and IEI and the member of ACM. He has worked as Secretary in IEEE Rajasthan Subsection and also as Membership Development Chair in IEEE Rajasthan Subsection. He is member standing committee member for Technical and Professional activities at IEEE Delhi Section and also a member of execom IEEE Delhi Section. Currently he is Chair in Jaipur ACM Professional Chapter and playing active role in ACM activities. He is having total 38 years of teaching including 7 years of research. While working at Poornima since 2011, he has developed unique R&D processes and curriculum and executed at Master and Doctoral level. He has worked majorly on human health issues. He is working research projects on Indian Rail Crack Detection and Monitoring and Micro-grid design and implementation in un-electrified villages of Rajasthan. His areas of research interest are Wearable & Pervasive Computing, Artificial Intelligence, Software Defined Networking, Wireless Sensor Networks, Smart Grids, Micro Grids etc. He has organized and chaired many IEEE, ACM, Elsevier and Springer international conferences and workshops and delivered keynote addresses. He is member of SAE Northern Section and has initiated SAE club in Poornima College of Engineering, Jaipur and motivated students and faculty members to organize numerous activities under the club. He has motivated students of PCE to participate in various competitions of SAE. Students have also won the prizes. He took significant efforts to form SAE Jaipur division and organized meeting of officials at Jaipur in this regard.

About **Session Speakers**

Dr.Zeittey Karmilla Kaman
Department of Business Management
College of Graduate Studies (COGS)
Universiti Tenaga Nasional, Malaysia

Dr. Zeittey Karmilla has more than 18 years of teaching experience. She also has various working experiences in academic research, consultancy, and supervision. Dr. Zeittey Karmilla has developed a passion for interdisciplinary discipline in energy policy, regulations & governance, environmental and social sustainability studies. Among the important topics that have been studied by her over the past years is the green Corporate Social Responsibility (CSR) framework for environmental protection in Malaysia. Currently, he is teaching CSR and Energy Regulations subjects for Master of Energy students and Research Methodology subjects for Ph.D. students. He is also supervising Master and Ph.D. students in the area of smart meter adoption and acceptance, leadership, and organizational environmental performance related studies. Dr. Zeittey Karmilla Kaman has demonstrated considerable expertise in providing research and consultancy services by reviewing and analyzing energy regulations and energy policy in Malaysia, using questionnaire survey analysis, stakeholder analysis, socio- economic impact analysis, case study and content analysis related to the area of sustainable renewable energy implementation among utility providers, consumers, and prosumers. In addition, he has vast research and consultancy experience from working on research projects funded by the MIGHT-UNIDO GEF6, TNB, and the government of Malaysia.

About **Session Speakers**

Dr.Aneesh Chand

Head of Robotics,
PETRONAS, Malaysia

Aneesh Chand gained his PhD from the Intelligent Robot Laborarory of the University of Tsukuba in 2012. From 2012 to 2013, he was project leader for an EU-FP7 European robotics project at the Institute of Mechatronic Systems at the University of AppliedSciences, Winterthur in Swizterland. He was later a Research Fellow at the Control Systems Lab of Toyota Technological Institutein Japan for two years. After a transition to industry, he was robotics research engineer at Sony Corporation and senior robotics engineer at Huawei Japan Research Center in Japan. In 2020, he joined the Robotics Lab of Petronas Research where he carries out applied and fundamental research in indsutrial robotics. He has published 40 papers, 1 book, 5 patentsand is the receipent and award finalist of two awards in international conferences.

About **Session Speakers**

Dr. Ooi Kok Loang
Deputy Dean
City Graduate School, Malaysia

Prof Dr Ooi Kok Loang serves as the Deputy Dean of the City Graduate School of Business at City University Malaysia. With over 50 papers indexed in Scopus and SCI, his research contributions are widely recognized. Prior to academia, he held a distinguished role as a business consultant for KPMG, specializing in corporate governance and providing invaluable board advisory services to Malaysia's leading listed companies.

About **Session Speakers**

Dr. Crystale Siew Ying Lim
Dean, Faculty of Applied Sciences
UCSI University, Malaysia

Crystale Siew Ying LIM, PhD is currently an Associate Professor and Dean at UCSI University's Faculty of Applied Sciences. Crystale earned a BSc (Hons.) in Biomedical Sciences (2005) and a PhD in Molecular Medicine (2010), both from the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM). She also completed her Postgraduate Diploma in Tertiary Teaching at UCSI. Crystale is active in science education among schoolchildren through hands-on workshops and applies a fun- learning approach to her classes at UCSI. She is a recipient of the runner-up award for the Malaysia Toray Science Foundation (MTSF) Science Education Awards 2016 and 2020, and has been invited to share her teaching methods and experiences at EduTECH Asia 2018-2021. She is an inaugural fellow of the prestigious L'Oreal- UNESCO For Women in Science National Fellowship 2006 (Malaysia) and a recipient of the coveted John David Williams Memorial Award (2013) from the International Society of Chemotherapy (ISC). Crystale has numerous media appearances and is always open to change-maker ideas for the advancement of science for humanity.

About **Session Speakers**

Dr. Bosede Edwards
Senior Lecturer
Universiti Sains Malaysia, Malaysia

Dr. Edwards is a seasoned academic and industry professional with over 27 years of combined experience in the field of education and research in both formal academic settings as well as in the industry. She holds both Masters and Ph.D. in Educational Technology, in addition to a Honours Bachelor in Chemistry and a Masters in Organic Chemistry. This rich background in education and STEM fields deeply enriches her perspectives. Dr. Edwards has a proven track record in research leadership and she has authored several articles that have been published in high-impact journals, and books. Her research interests revolve around the potentials of emerging technologies and Human-Machine and Adaptive Learning Interfaces in transforming future school. Dr. Edwards is passionate about, and has extensive experience in fostering industry-academia and interdisciplinary academic and research collaborations. She is a Senior Lecturer at the Center for Instructional Technology and Multimedia, Universiti Sains Malaysia and a Senior Consultant at Global Trends Academy.

About **Session Speakers**

Dr. Jameel Ahmed Qureshi

Poornima University,
India

Dr. Jameel Qurashi pursued his Bachelors in Computer Applications from University of Kashmir in 2011 and Master in Computer Applications from University of Kashmir in year 2014. He was awarded with Ph.D. Degree in 2020 from Department of Computer and System Sciences, Jaipur National University, Jaipur. He is currently working as Associate Professor in Poornima University. The Previous work organizations include Chandigarh University, JNU Jaipur, Kashmir University, RBL Bank and Dynacode. He was granted Quarterly Franklin Membership from London Journals United kingdoms in 2019 and awarded with Young Researcher award 2020 by INSC Bangalore. His Publications include various research papers in reputed international, national journals and conferences including IEEE. He has also contributed in writing book chapters published by CRC Press IN TAYLOR & FRANCIS, Rout and ledge and published 4 patents in IPR. The main research work focuses on Software Security, NFR Security, Hybrid Architectural security and Privacy, Algorithmic analysis, IoT and Computational Intelligence based education. He has guided Masters students and currently supervising 5 Ph.D. Candidates. Thereby concluding 8 years of Research Experience.

About **Session Speakers**

Mr. Surendar Rama Sitaraman

AI Frameworks Engineer,
Intel Corporation, California, USA

Surendar Rama Sitaraman is currently an AI Frameworks Engineer at Intel Corporation, where he contributes to the development and optimization of AI frameworks, driving innovation in AI and machine learning technologies. Prior to rejoining Intel, Surendar served as a Staff Engineer at Samsung Austin R&D Center (SARC), Advanced Computing Lab (ACL), contributing to the development and optimization of software solutions for Samsung's flagship devices. He holds a Master of Science in Computer Science from the University of Southern California, Los Angeles, California, and has a substantial background in graphics, machine learning, artificial intelligence, and AI frameworks. Throughout his career, Surendar has significantly advanced technology in these fields and has contributed as a reviewer for peer-reviewed journals. He also holds patents for innovative technologies in IoT and artificial intelligence. As an active researcher, Surendar has authored approximately 10 papers. His research interests span Cloud Computing, Data Mining, Graphics, Artificial Intelligence, Machine Learning, and IoT. He is also an active member of professional bodies such as IEEE, IAENG, and ACM, furthering his engagement with the scientific community and contributing to ongoing discussions and developments in his field.

About **Session Speakers**

Dr. Erisa Kurniati
Lecturer
Universitas Jambi, Indonesia

Surendar Rama Sitaraman is currently an AI Frameworks Engineer at Intel Corporation, where he contributes to the development and optimization of AI frameworks, driving innovation in AI and machine learning technologies. Prior to rejoining Intel, Surendar served as a Staff Engineer at Samsung Austin R&D Center (SARC), Advanced Computing Lab (ACL), contributing to the development and optimization of software solutions for Samsung's flagship devices. He holds a Master of Science in Computer Science from the University of Southern California, Los Angeles, California, and has a substantial background in graphics, machine learning, artificial intelligence, and AI frameworks. Throughout his career, Surendar has significantly advanced technology in these fields and has contributed as a reviewer for peer-reviewed journals. He also holds patents for innovative technologies in IoT and artificial intelligence. As an active researcher, Surendar has authored approximately 10 papers. His research interests span Cloud Computing, Data Mining, Graphics, Artificial Intelligence, Machine Learning, and IoT. He is also an active member of professional bodies such as IEEE, IAENG, and ACM, furthering his engagement with the scientific community and contributing to ongoing discussions and developments in his field.

About **Session Chairs**

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Vice Principal, Poornima College of Engineering, Jaipur, India

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Professor, Department of Advance Computing, Poornima College of Engineering, Jaipur, India

Dr. Zahera Mega Utama, SE.MM.
Dean of the Faculty of Economics, Prof. Dr. Moestopo Beragama University, Indonesia

About Session Chairs

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Chancellor, Institut Bisnis dan Informatika Kosgoro, Indonesia

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Lecturer, Department of Civil Engineering, University of Indonesia (UI), Kota Depok, Indonesia

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Ph.D. Scholar, Department of Computer Science, Poornima University, Jaipur, India

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List of **Abstracts**

Leveraging AI Chatbots for Enhanced Web-Based Knowledge Management Portals

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Abstract-- The rapid digital transformation has reshaped knowledge management, driving the need for advanced solutions to manage information's increasing volume and complexity. This paper investigates the role of AI chatbots in enhancing web-based knowledge management portals, focusing on their ability to streamline information retrieval, deliver personalized responses, and support continuous learning. By examining the design, benefits, and limitations of chatbots, the study emphasizes their capacity to provide instant, conversational interactions that mimic human interviews, fostering user engagement and improved learning outcomes. However, challenges persist, particularly in chatbots' understanding of conversational nuances and contextual accuracy. The research employs qualitative and quantitative methods, analysing chatbot integration in knowledge portals, and finds that AI chatbots significantly improve system accessibility, responsiveness, and scalability. This contributes to enhanced organizational productivity and more informed decision-making, positioning chatbots as key enablers in modern knowledge management systems.

Keywords-- Chatbots, Knowledge Management, Digital Transformation, Information Retrieval

When the King's Philosophy Meets Local Wisdoms: Raising the Potential for Community Product Standards and Cultural Tourism in the Central Northeastern Region of Thailand

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Abstract-- This research investigates the methods that can be utilised to improve community products and cultural tourism in Thailand's central northeast in order to address economic and social disparities. The study takes after the philosophy of King Rama IX and creative local wisdoms and uses a three-pronged approach. Firstly, working to improve and establish quality standards for community products and leveraging local knowledge can lead to the enhancement of community products. Secondly, the framework for cultural tourism can be conceptualised through the capitalisation of the uniqueness of the region. Thirdly, fostering community innovations, sustainable learning arises as the pragmatic resolution for long-run empowerment of cultural and economic development. The study utilises a combination of research methods such as interviews, observations, and surveys to pinpoint important areas for growth. These areas include establishing a brand, utilizing content marketing, improving product design, and developing regional tourism calendars. The results indicate that these strategies, which are rooted in local knowledge and the King's philosophy, have the potential to reduce economic and social inequalities while promoting community-based prosperity.

Keywords-- King's Philosophy, Local Wisdoms, Community Product Standards, Cultural Tourism, Central Northeastern region of Thailand

ISBN: 978-81-970508-2-4

Going Above and Beyond: Revolutionising Thai Secondary Schools Education via MOOC Course Development

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Abstract-- This study aims toward developing and implementing a Massive Open Online Course (MOOC) learning model specifically for Thai secondary schools in order to address challenges in relation to online learning with the intention to create a tailored curriculum, content, and online lessons which comply with learners' needs in the changing landscape of teaching and learning. The research involved 70 school representatives from the Secondary Educational Service Area Office of the Mahasarakham prefecture with their consented participation in interviews and questionnaires for data collection. The data was then analysed via content analysis and descriptive statistics. The key findings of the study deduce that the students have their own learning devices, with 80% having internet access from home. Students are actively engaged in online learning, showing positive participation and effective use of teacher programs. Teachers provide strong support and recommend online resources, indicating moderate views towards the MOOC implementation. Recommendations from the study include limiting MOOC course content to 12 hours, with 35% delivered through video media in 10-minute segments. Teacher development guidelines must emphasise classroom management, teaching skills, and digital proficiency. Overall, this research contributes to the advancement of MOOC learning models in Thai secondary education, aiding in facilitating the shift towards digital teaching and learning methods.

Keywords-- Curriculum Development, Massive Open Online Courses (MOOC), New Normal, Secondary School

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This research is funded as a Fundamental Fund research by Bureau du Conseil Thaïlandais de Promotion de la Science, la Recherche, et L'Innovation (in native language: สำนักงานคณะกรรมการส่งเสริมวิทยาศาสตร วิจัย และนวัตกรรม) in conjunction with Institut de Recherche et Développement of Rajabhat Mahasarakham University (in native language: สถาบันวิจัยและพัฒนา มหาวิทยาลัยราชภัฏมหาสารคาม) in the budget year of 2566 B.E. assuming the project name of "The Development of a Massive Open Online Course (MOOC) Learning for Schools under the Office of the Basic Education Commission".

Smart Soil Nutrient Analyzer

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Abstract-- In the dynamic realm of precision agriculture, the “Soil Nutrient Analyzer” stands tall as a groundbreaking project, revolutionizing how we approach crop cultivation. Leveraging the power of the NPK sensor, Arduino Nano, Modbus, and an OLED screen, this innovative system aims to decode the soil’s nutritional secrets, thus assisting farmers in making informed decisions for optimal crop selection. The project’s core functionality involves extracting Nitrogen, Phosphorus, and Potassium values directly from the soil, providing valuable insights into the soil’s fertility.

Keywords-- Arduino Nano, Modbus, NPK Sensor, OLED Screen, Soil Nutrient Analyzer

ISBN: 978-81-970508-2-4

Detecting Brain Tumors Using an Adaptive DE Algorithm with the Otsu Technique

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Abstract-- Brain tumors require precise and prompt detection techniques because they pose a serious challenge to medical diagnosis and treatment. In order to improve brain tumor diagnosis from medical imaging data, this work presents a novel method that combines the Otsu methodology with a customized Differential Evolution (DE) algorithm. For segmentation, the Otsu approach is used for accurate thresholding, and the DE algorithm is specifically tailored to improve the process. This study assesses the efficacy of the suggested methodology through thorough testing and analysis using a variety of datasets, including MRI and CT scans. Comparing the results to traditional methods, it is clear that the accuracy of tumor detection and the quality of segmentation have significantly improved. The integrated approach exhibits favorable outcomes for advancing computer-aided diagnostic systems, offering medical practitioners a reliable means for early tumor identification and subsequent treatment planning.

Keywords-- Control Parameters; Optimisation; Segmentation; Otsu Technique

ISBN: 978-81-970508-2-4

Development of a Home Healthcare System for a Person Under Monitoring with Remote Access Through Web Application

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Abstract-- The crisis brought about by the spreading of coronavirus disease 2019 (COVID-19) pushed the medical field around the world to explore techniques to monitor one's health condition. A critical aspect of containing illness is isolation; however, it could also lead to less interaction between a patient and a corresponding caregiver. This study aimed to develop a home healthcare system for a person under monitoring, like those experiencing illness, that is easy to use and multifunctional. The system includes the following devices: a smart medicine box that could remind the patient which medicine to take at a specific time of the day; an automated vital signs monitoring device that could automatically retrieve vital signs from a pulse oximeter and temperature sensor; general communication devices between the patient and the caregiver; and a web application that is locally available for the patient and the caregiver and could be accessed by a doctor using the Internet. The said devices are interconnected via a local network, and a raspberry pi syncs the data from the local database to the cloud database, where the doctor can view it using the online web application. The said devices were successfully implemented and interconnected via a router and tested with an Internet connection. The delays recorded in the devices were low enough to make them acceptable for possible medical usage in the future once medically proven safe to use.

Keywords-- Home Healthcare System, Monitoring with Remote Access, Web Application

ISBN: 978-81-970508-2-4

A Review on Analysis and Design of Railway Steel Bridge

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Abstract-- An increasingly important tactic for risk reduction and uninterrupted operation in infrastructure management is strengthening aging bridges. As a result of age and degradation as well as more stringent environmental and load requirements, transportation networks are home to an increasing number of defective buildings. However, from an economic and environmental perspective, employable resources are limited. Strengthening options, which improve bridges with little impact on the economy or the environment, should be taken into consideration as a feasible choice for these reasons. A selection of the most intriguing strengthening methods for historic truss steel bridges are shown from this angle. In order to discuss practical remedies, the most common issues with vintage truss railway bridges are first discussed. Results from a representative bridge cluster were compared to a literature review and expert interview process. After that, several approaches to the issues that have been brought to light are gathered and qualitatively assessed for their effectiveness in meeting structural and conventional building criteria. Ultimately, broad observations and suggestions grounded in gathered data are shown.

Keywords-- Railway Bridge, Steel Structure, Wind Analysis, Truss, Strengthening

ISBN: 978-81-970508-2-4

Development of Green Road Production Machine to Layup Geopolymer Material that Absorb Water

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Abstract-- Development of a layup geopolymer machine is expected by many green road contractors that coutch increasing demand overtime as the regulation support, conservation of water prioritized everywhere, abundance materials of geopolymer aggregate for road hardener, and increasing awareness of green road application in many infrastructure development. Green road production has been implemented in certain areas such as resort, housing communities, and public buildings in the form of paving block. Green road production machines that process geopolymer material in similar fashion to other road hardener production practices such as using asphalt or concrete are not yet available in the market as it requires certain specific process to layup, compacted, and let the geopolymer material form porous structure. The process was researched including aggregate geopolymer materials composition, some weight to compact, and holding time to form porous structure to determine criteria of machine design and development. Then, using VDI-2222 methodology the design criteria were carried out into manufacturing stage that will be presented in this paper. The machine design will present the main part of the aggregate polymer mixing and layup on the road surface for such purpose. The machine design also presented for green road production as it requested first by contractor partners under the initial survey which will specifically build road shoulders to absorb water which has road dimension of 1,0 meter wide and of 10,0 cm thickness. This publication is one of the output of the National Research on Vocational Product that is supported by the ministry of education, culture and research aiming to push real product into commercial stage.

Keywords-- Geopolymer Materials, Geopolymer Structure, Aggregate Polymer Mixing Design, Porous Road Production

ISBN: 978-81-970508-2-4

Effective VARK Model among Academician and Student Classroom Engagement: A Case Study in American Degree Transfer Program, Sunway University

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Abstract-- An effective communication could relate well to the use of VARK model which consist of visual learning, aural learning, read write learning and lastly the kinesthetics learning. Each learning style has its unique way of igniting the suitable way of learning among students. This study aims to investigate the impact of learning preference among students and best suited teaching style using VARK model by academicians in American Degree Transfer Program (ADTP). The study used qualitative research with purposive sampling. There were five (5) lecturers from various major's background from ADTP whom has been interviewed. The study found that learning style differs according to each module and subject. Further this study confirms that under the VARK model the visual mode is more popular among student as it's the millennial generation who prefers the digital technology compared to traditional classroom. However, respondents believed that face to face delivery of subject are definitely the best approach. Nevertheless, hands on activities and presentation does attract student engagement unlike textbook usage which only helps with further enhancement of a subject matter. Apart from acquiring skills and creating positive attitude, this study also creates unique learning environment that could ignite the sense of students to think further. As a conclusion, the study is important for academicians to know and understand their students in order to acknowledge the best suited learning style preferred by students. A comparison of learning style using the VARK model can be carried out between private and public varsity in future studies.

Keywords-- VARK Model, Academician and Student Classroom, American Degree Transfer Program, Sunway University

ISBN: 978-81-970508-2-4

Natural Compound Malabaricone Conjugated with Silver Nanoparticle as an Anti-Amoebic Agent against Primary Amoebic Meningoencephalitis (PAM) caused by *Naegleria Fowleri*

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Abstract-- *Naegleria fowleri,* a free-living waterborne amoeba, causes fatal primary amoebic meningoencephalitis (PAM) when it enters the brain through the nose. Treatment options are limited due to a lack of FDA-approved drugs and poor blood-brain barrier penetration. Silver nanoparticles exhibit potent antiamoebic properties and can enhance the efficacy of therapeutic agents at specific biological targets. Natural folk remedies have long been utilised in disease treatment, with phytochemicals from various plants demonstrating significant amoebicidal properties. These bioactive compounds offer potential therapeutic benefits against amoebic infections. In this study, malabaricones A, B, and C, extracted from Myristica cinnamomea, were conjugated with silver nanoparticles ($AgNO_3$) to determine their effects on PAM infection. These AgNPs coated with malabaricones (AgNPs-Mal-A, B, C) were characterised by using UV-visible spectrophotometry and gave a maximum absorbance at 380, 425 and 422 nm, while high-resolution transmission electron microscopy showed the nanoconjugates were regular and rounded in shape, respectively. These nanoconjugates were evaluated against trophozoites of *N. fowleri.* All three nanoconjugates showed potent activity, however, the most potent activity was recorded for Mal-C-AgNPs. It significantly inhibits the viability of trophozoites, showing an IC_{50}/24 h at 38.15 ± 8.10 µM, respectively. The IC_{50} recorded for Mal A-AgNPs and Mal B-AgNPs was 24.94±1.91 µM and 29.75±4.25 µM, respectively. The morphological changes were recorded via scanning electron microscopy, while viability was illustrated via light microscopy. All nanoconjugates significantly reduced the host cell cytopathogenicity while showing moderate toxicity at lower concentrations against HaCaT cells. The results indicate that all three tested nanoconjugates show potential as effective alternative therapeutic agents against *N. fowleri* infections.

Keywords-- *Naegleria fowleri*, Primary Amoebic Meningoencephalitis (PAM), Silver Nanoparticles (AgNPs), Phytochemicals, Natural Folk Remedies

ISBN: 978-81-970508-2-4

Repurposing CNS drugs Zonisamide and Perampanel in combating Granulomatous Amebic Encephalitis (GAE) infection caused by Acanthamoeba.

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Abstract-- *Acanthamoeba castellanii*, an opportunistic free-living amoeba, causes severe CNS infections like granulomatous amoebic encephalitis (GAE) and blinding ocular infections like Acanthamoeba keratitis (AK). Treatment challenges stem from the absence of safe and effective drugs, inability to penetrate blood-brain barrier (BBB) and amoeba's cyst-forming ability. Most of the drug is currently under development, and there is limited information regarding its dosage, optimal timing, role, and route of administration. Therefore, repurposing drugs is an ideal strategy for promptly addressing *A. castellanii* infection. The objective of this study was to assess the anti-amoebic properties of two clinically approved AEDs, Zonisamide (A) and perampanel (B) against *A. castellanii* of the T4 genotype. Both drugs (A and B) exhibited potent antiamoebic activity with IC50/24 hr values of 56.04±1.09 and 62.03±0.67 µM. At 50 µM, they reduced cyst viability by 70% and 62%, respectively. Zonisamide inhibited phenotypic transformation significantly at 50 µM, whereas perampanel required higher concentrations. Both drugs effectively reduced host cell cytopathogenicity and demonstrated moderate toxicity towards HaCaT cells at lower concentrations. Amoebic morphological changes induced by drug treatment were observed using light microscopy during the assessment. These results showed that both drugs exhibit promising potential as repurposed drugs against AGE caused by *A. castellanii*, representing a significant advancement in drug development targeting all stages of the pathogen.

Keywords-- VCNS Drugs, Zonisamide, Perampanel, Granulomatous Amebic Encephalitis (GAE), Acanthamoeba

Social Commerce Approbation and Sustainability: An Empirical Evidence from Generation Z

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Abstract-- The United Nations and the African Union have expressed its intention to harness the capabilities of social commerce (s-commerce) as a means to promote trade in accordance with Sustainable Development Agenda. S-commerce sustainability is linked to attainment of Ten out of the Seventeen Sustainable Development Goals. Despite its relevance very little studies have been conducted on s-commerce Approbation and sustainability with a focus on generation z in lower-middle income country context. It is against this backdrop that the current paper aims do develop a baseline structural model to encourage the Approbation and sustainability of s-commerce from the perspective of generation z by extending Technology Organization Environment (TOE) with Social Capital Theory, and Technology Acceptance Model (TAM). The paper utilizes quantitative research approach, explanatory design, and a survey - based questionnaire. Our hypotheses have been tested using Smart Partial Least Square (Smart-PLS) version 3.8.9 and Structural Equation Modelling (SEM) techniques. Our indicative results have showed that the dimensions of TOE (Technological, Organizational, and Environmental), dimensions of TAM (Perceived Ease of Use, and Perceived Usefulness), and social trust significantly affect s-commerce Approbation. Moreover, the s-commerce Approbation mediates the relationship between its determinants and sustainability performance of small business. These results have implications on policymakers, practitioners, and academicians in fostering the creation of respectable employment opportunities, facilitating productive endeavors, nurturing entrepreneurial spirit, fostering innovation, and cultivating creativity, all in the pursuit of business sustainability. Again, the newly built model could be used to encourage the Approbation and sustainability of s-commerce from the perspective of generation z in lower middle countries where such studies largely remain fuzzy.

Keywords-- Social Commerce and Small Business, Sustainability, TOE Model, Generation Z, Social Capital Theory

ISBN: 978-81-970508-2-4

Exploring the Implementation of Hierarchical Deterministic Wallets in Organizational Settings

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Abstract-- Several studies have delved into technical aspects of Hierarchical Deterministic wallets. However, there is yet research regarding its use in organizations. This study aims to explore various aspects of HD wallets in organizational settings. Exploring technical requirements for implementation, benefits and risks of adoption for organizations, and adoption recommendations. The data will be gathered through a systematic literature review, utilizing specific coding forms to extract information from different literatures. Furthermore, an experimental implementation for gathering information regarding technical requirements of HD wallets. The results of the review aim to answer the research questions constructed prior to the start of the research, covering the possible benefits and risks of adopting HD wallets, technical specifications, and considerations of adoption. In the end, a literature review was conducted on 18 literatures, and an implementation was created uncovering information regarding technical aspects of implementing HD wallets, such as access control, key management, data transmission, and more. The findings provided information regarding the requirements and considerations relating to the implementation and adoption of HD wallets. Providing several recommendations for organizations looking to adopt HD wallets, such as conducting regular security audits, human factors, and key management practices.

Keywords-- Blockchain, Cryptocurrency, Hierarchical Deterministic Wallet, HD Wallet, Organizational Implementation

Introducing a Novel Technique for Overlapping Two Polymer Materials using Material Extrusion 3D Printing

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Abstract-- Material extrusion 3D printing has made significant strides, yet challenges remain in seamlessly integrating multiple polymer materials in a single print. This abstract introduces a novel technique that precisely overlaps two polymer materials during the printing process, expanding the capabilities of additive manufacturing. Leveraging advanced control systems to synchronize the deposition of two distinct polymers, this method ensures a seamless transition and strong adhesion between layers. Optimizing material flow rates, temperature profiles, and layer bonding mechanisms is crucial for achieving high-quality prints with enhanced structural integrity and material properties. This approach unlocks possibilities across various industries. For instance, in the automotive sector, it enables the fabrication of lightweight components with tailored mechanical properties, such as reinforced sections overlapped with flexible elastomers for vibration damping. In the medical field, the technique facilitates the creation of complex implants with biocompatible coatings for improved integration and reduced rejection rates. Beyond traditional applications, this technique paves the way for developing functional prototypes, customized products, and advanced composite structures with superior performance characteristics. Through collaborative efforts and continued innovation, this method promises to redefine the boundaries of additive manufacturing and drive the next wave of technological advancement. By enabling the precise deposition of overlapping polymer materials, it significantly enhances the potential of 3D printing technology, offering new solutions to complex manufacturing challenges and contributing to the advancement of various fields.

Keywords-- Novel Technique, Polymer Materials, 3D Printing

ISBN: 978-81-970508-2-4

Enhancing the Efficiency of Solar Panels Using Cooling and Cleaning Systems

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Abstract-- With the advancing technology and rapidly growing need for solar energy, scientists are paying greater attention to photovoltaic systems to enhance efficiency. Dust accumulation and overheating are the main aspects of maintenance required for enhanced and longer yield performance of PV panels and are major hindrances to increasing the efficiency of the PV system. The temperature of the environment where the panels are placed decreases their efficiency and may lead to overheating. The accumulation of dust on the surface of solar panels decreases the ability of the panels to absorb light. Our paper aims to analyze the influence of cooling and cleaning mechanisms on the PV panel's performance by addressing the two issues. Our system uses cooling and cleaning systems to address the issues affecting PV panels' efficiency under overheating and dust accumulation and enhance their performance. We mount wipers on the solar panel to clean the dust from its surface and implant a piping cooling system under the solar panel to solve the overheating problem. The cooling system starts when the sensor's temperature of the panel surface exceeds the overheating threshold, and the cleaning system is timed by one hour to wipe the system automatically. We compared the power generated by the solar panel and calculated the system's efficiency with and without the cooling and cleaning systems. The results indicate that cleaning and cooling the PV panel's surface decreases the operating temperature by 5 to 8 degrees, increases power output by about 4.5 watts, and improves efficiency by about 3%.

Keywords-- Solar Panels, Cooling System, Cleaning System, Efficiency

Laboratory Level Research on PRO Blue Energy Generation Technology

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Abstract-- The investigation of new energy solutions is imperative in light of the prevailing climate changes and the pressing necessity to curtail carbon emissions. In this context, blue energy represents a promising energy resource with remarkable potential to contribute to clean energy production. In this study, the technique of energy generation by pressure retarded osmosis (PRO) was tested at the laboratory level. Different membranes and cells were tested using both synthetic waters and natural waters. The natural waters were collected from the Danube River (fresh water) and the Black Sea (salty water). A series of experiments were conducted to investigate the effects of varying parameters, including salinity concentrations, pressures, and flow rates. The data obtained from the various sensors employed to monitor the system's behavior were recorded electronically. The efficiency, effectiveness, and performance of PRO technology, as well as the inherent challenges associated with this technology, were investigated. The results demonstrated that blue energy has significant potential as a source of continuous, stable, and reliable energy.

The incorporation of blue energy into the global energy mix has the potential to diminish reliance on fossil fuels, mitigate greenhouse gas emissions, and contribute to the mitigation of climate change.

Keywords-- Solar Panels, Cooling System, Cleaning System, Efficiency

ISBN: 978-81-970508-2-4

Effects of Data Augmentation on a CNN Model for Baybayin Character Recognition

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Abstract-- In 2018, the Philippine government approved House Bill 1022 which declared the Baybayin script as the official national writing system of the Philippines. In accordance with the bill's mandate to promote, protect, preserve, and conserve the Baybayin script, this study takes an in depth look at the effects of data augmentation (DA) techniques on a Convolutional Neural Network (CNN) model for Baybayin character recognition. The dataset was preprocessed to balance the class distribution then we explored geometric and photometric DA methods to observe its effects on model performance using the YOLOv8 algorithm. The DA techniques were set to small uniform intervals when performing the experiments and then key metrics like precision, recall, F1-Score, and mAP are evaluated. The results demonstrate varying impacts of different DA techniques on model performance, with detailed analyses of rotations, shearing, and noise injections. The study contributes to understanding, promoting, and preserving the Baybayin script through machine learning advancements in learning and using the script.

CCS Concepts: Computing Methodologies, Artificial Intelligence, Natural Language Processing, Phonology/Morphology.

Keywords-- Baybayin, Data Augmentation, Optical Character Recognition, Computer Vision, Convolutional Neural Network, Heritage Conservation

Prototype of Web-Based Application as Information Media for SLB and Therapy Services in Malang Raya

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Abstract-- The study aims to investigate the development and impact of a web-based application that seeks to centralize and streamline access to information about special education schools (SLB) and treatment facilities in the Malang Raya area. The rapid progress of information and communication technology (ICT) presents a huge chance to improve the delivery of services and the spread of information in the domains of education and healthcare, specifically for children with special needs. This research utilizes many data collection techniques, such as observations, interviews, and document analyses, to identify the precise requirements and difficulties encountered by parents and caregivers when seeking pertinent information. The program employs digital technology to centralize fragmented data, providing a user-friendly interface that enhances the effectiveness of data retrieval and facilitates streamlined decision-making for parents. The program offers several important features, such as interactive maps, comprehensive service descriptions, and a community forum. These features work together to promote stronger community support and improve communication between service providers and users. The study finds that the application effectively helps to decrease the digital gap, empowering parents and caregivers by offering timely and accurate information that promotes the optimal development of children with special needs. This research highlights the significant impact that ICT may have in developing educational and therapeutic environments that are more inclusive and responsive.

Keywords-- Special Education, Web-based Application, Information Accessibility, Therapy Services, Digital Inclusion

ISBN: 978-81-970508-2-4

Organization E-Voting System of Cavite State University

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Abstract-- Organization E-Voting System of Cavite State University is a web application that serves as the platform for conducting elections for organizations. This study aimed to digitize student organizations' election processes and to assist the faculty members who manage the elections and the students. It has three user accounts: Comelec, organization advisers, and students. Comelec can create organizations that they can assign to their respective organization advisers. They also can create an election session which can manage student Partylist as well as monitor the election sessions. The organization adviser can monitor the election sessions. The students can access the system only when there is an election session to view candidates and vote for their chosen candidates. It used Agile methodology since it allows continuous iteration during the development and testing throughout the software development life cycle of the project. The system was utilized by four recognized organizations, the Junior Philippine Computer Society, the Association of International Hospitality Management Students, the Junior Marketing Association, and the Central Student Government, to test the functionality of the system. The web application was evaluated based on ISO25010 by IT experts or professionals, students from different organizations, and organization advisers and got a grand mean of 4.41. Results show that the web application was found to be very good in terms of functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. This indicates that the web application passed the standard of system requirements.

Keywords-- E-voting System, Comelec, Organization, Partylist, Election Session

Emotion-Aware Music Information Retrieval System

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Abstract-- This study introduces an innovative system designed to refine song recommendations based on the user's expressed emotions. By leveraging a comprehensive database of songs spanning from 1950 to 2019, the system ranks and retrieves top songs, integrating a feedback loop to enhance personalized experiences. It also incorporates the Streamlit platform, enabling interactive input for personalized music recommendations. The objective is to elevate user engagement by prioritizing music selections finely attuned to the user's emotional state, offering an enriched and tailored music recommendation service.

Keywords-- Music Information Retrieval, Emotion-Based Model, Metadata-Based Model, Cosine Similarity, Content-Based Recommendation, Feedback Loop

ISBN: 978-81-970508-2-4

The Influence of Work-Life Balance on Turnover Intention is Mediated by Job Satisfaction at KAP in Indonesia

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Abstract-- In this study, we examine the influence of the Work-Life Balance dimensions, namely WIPL (Work Interference with Personal Life) and PLIW (Personal Life Interference with Work), and Job Satisfaction (JS) on Turnover Intention (TI) in the context of Public Accounting Firms (KAP) in Indonesia. A survey was conducted on 114 employees working in various KAPs such as EY, PWC, KPMG, Deloitte, and other KAPs. This study uses quantitative analysis with the use of SmartPLS 4.0 for primary data management and SEM model acquisition. The results show that five out of seven hypotheses are accepted. The simulation of these effects shows that WIPL significantly affects JS and TI, while PLIW only affects JS and does not affect TI. Furthermore, JS significantly affects TI and mediates the effect of PLIW on TI, but JS does not mediate the relationship between WIPL and TI. This study found that employees who feel their personal lives are interfered with by their work lives are more likely to have the intention to leave the company. This study also shown that employees will be satisfied with their work if there is a balance between work responsibilities and personal life. Therefore, this study can be used to design human resource strategies that include a comfortable working environment while still giving employees the freedom to pursue personal activities outside of work in order to increase JS and minimize TI.

Keywords-- Work Interference with Personal Life, Personal Life Interference with Work, Job Satisfaction, Turnover Intention, Human Resource Management

Sustainable Future through Education for Water

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Abstract-- Access to drinking water, sanitation, and hygiene is a human right, although half the world's population suffers from water scarcity. This insufficiency is expected to worsen with rising global temperatures and climate change. Including the entire Society in the management of water resources will bring sustainability to human and ecological systems. Including the Society in the management of water resources will bring sustainability to human and environmental systems. This can be achieved with education; however, what are the essential topics in Education for Water (E4W)? In what areas of knowledge is it relevant? This research sought to answer these questions through quantitative analysis. We consulted 44 experts (47% females, 90% having postgraduate studies, and 71% working in the public education sector) and found that the most important E4W topics are Water Quality, Natural Availability, and Renewable Water. Additionally, they mentioned Hydric Resources Management and Awareness of Water. Although this topic is interdisciplinary and interinstitutional, most participants stated that E4W should only be addressed in certain areas of knowledge. In contrast, the authors, in agreement with the United Nations, consider that to strengthen the water security of communities, E4W must become a real object of study at all educational levels and areas of knowledge. This way we will be forming and developing the technology that Society 5.0 requires.

Keywords-- Hydric Security, Awareness of Water, Education for Sustainability, Environmental Education, Skills for the Future, Professional Education, Higher Education, Educational Innovation

ISBN: 978-81-970508-2-4

Factors Causing Difficulties in Learning Biology Among Grade 10 Students in Public Schools in Butig Town, Province of Lanao del Sur, Philippines

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Abstract-- This study investigated the learning difficulties in biology among grade 10 students in public schools in Butig town, Lanao del Sur, Philippines, for the school year 2023-2024. The sample consisted of 100 (n=100) grade 10 students from two national high schools in Butig. Data was collected using a survey questionnaire developed by the authors, the Students' Difficulties in Learning Biology Questionnaire (SDLBQ). The study aimed to answer two questions: 1) What are the causes of students' difficulties in learning biology? 2) What are the levels of students' difficulties in learning biology? The results revealed that the causes of students' difficulties in learning biology in terms of nature of biology factors were biological concepts, principles, and entities are difficult to see in their physical existence, biology uses a highly specialized terms and jargons, and doing biological experiments that requires stepwise procedure and manipulative skills. For teacher factors, teachers' lectures and discuss so fast and students' struggles in listening and catching teachers' lectures while at the same time copying the writings on the board. And for students factors, students have hard time in grasping and understanding right away biological concepts and principles during teachers' discussions, students did not like memorizations of biological terms, and students cannot endure the long-time of memorizing biological concepts, principles, theories and terms.In terms of level of difficulty, more than half (50.6 %) of the respondents have high level of difficulty due to nature of biology while (31.4%) experienced low level of difficulty and (18.2%) were neutral. For teaching factors, more than half (53.6%) had a low level of difficulty, (27.0%) had high level of difficulty, and 19.4% were neutral. For student factors, less than half (37.4%) had high level of difficulty, (34.6%) had low level of difficulty, and (28.0%) were neutral.

Keywords-- Students, Learning, Difficulties, Biology, Teacher

Factors Causing Aversion in Chemistry among Senior High School Students of Balindong Community High School of the Mindanao State University

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Abstract-- This study investigated the factors causing aversion in chemistry among senior high school students of Balindong Community High School of the Mindanao State University (MSU) at Marawi City, Philippines enrolled in school year 2023-2024. The investigation is guided by the following two questions: 1) What are the causes of students' aversion in chemistry? 2) What are the students' levels of aversion in chemistry? A combine of one hundred forty (n=140) grade 11 and 12 senior high school students were surveyed using questionnaire developed by the authors called Aversion in Chemistry Questionnaire (AiCQ). Students' aversion in chemistry were hypothesized as caused by nature of chemistry, teacher, and students' interest factors.

On the factors causing aversion, on the average, less than half of the respondents declared that the nature of chemistry factors causes averted (34.6%), not averted (32.6%) and neutrality (32.9%). Less than half of the respondents declared that the teacher factors cause not averted (34.9%), averted (32.3%) and neutrality (32.4%). Less than half of the respondents declared that the student interest factors cause not averted (37.3%), averted (28.4%) and neutrality (34.3%). On the level of aversion, on the average, less than half of the respondents have high level (34.6%) of aversion due to nature of chemistry factors than those low level (32.6%), and neutrality (32.9%). Less than half of the respondents have low level (34.9%) of aversion due teacher factors than those high level (32.3%) and neutrality (32.4%). Less than half (37.3%) of the respondents have low level of aversion due to student factors than those high level (28.4%) of difficulty and neutrality (34.3%).

Keywords-- Aversion, Nature of Chemistry, Factors Causing Aversion

ISBN: 978-81-970508-2-4

Factors Causing Aversion to Physics Among Senior High School Students of Public Schools in Marawi City, Philippines

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Abstract-- This study investigated the reasons behind senior high school students' aversion to physics within the STEM track in public schools in Marawi City, Philippines, for the 2023-2024 school year. A total of 212 grade 11 and 12 students participated in a survey using the Aversion to Physics Questionnaire (APQ) designed by the researchers. The investigation aimed to identify the major causes and the levels of students' aversion to physics. The findings revealed that the aversion to physics among students were caused by the following: mathematical manipulation involved in solving physics problems, being not good in mathematics, memorization of many mathematical formulae and units, teacher giving numerous problem-solving assignments on a weekly basis, teacher teaching the subject purely in a lecture-discussion approach, mathematical computation needed in solving problems, physics concepts and principles are difficult to understand, involvement of deeper analysis in problem solving, teacher not relating physics concept and principles to real life situations, problem solving, and mathematics involvement in learning physics concepts and principles. In terms of the level of aversion, on average, 37.5% of students reported high aversion due to the nature of physics factors, compared to 35.9% with moderate aversion and 26.5% with low aversion. Teacher factors led to high aversion in 41.4% of students, with 35.2% and 23.4% reporting low aversion and moderate aversion, respectively. In terms of students' interest factors, 37.3% experienced low aversion, 34.8% moderate aversion, and 27.9% high aversion. The fear of mathematics factors caused high level of aversion for more than 50% of the students compared to 30.7% with moderate aversion and only 18.7% with low aversion. Moreover, the research suggests that high aversion to physics among the respondents is primarily driven by difficulties with mathematical content, ineffective teaching methods, and a lack of real-world relevance, indicating a need for improved instructional strategies and support.

Keywords-- Aversion to Physics; Nature of Physics; Fear of Mathematics; Physics Interest; Physics Teacher; Marawi City Senior High School Students

Factors Causing Anxiety in Mathematics among Grade 10 Students in Public High School in Maguing Town Province of Lanao Del Sur Philippines

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Abstract-- This study investigated the causes of anxiety in mathematics among grade 10 students in public high school in Maguing town, province of Lanao del Sur, Philippines enrolled in school year 2023 – 2024. A total of one hundred (n=100) grade 10 students from one of the national high schools of Maguing served as the respondents. The respondents were surveyed using questionnaire developed by the authors called the Causes of Students' Anxiety in Mathematics Questionnaire (CSAMQ). The investigation was guided by the following two research questions: 1) What are the levels of students' anxiety in mathematics? 2) What are the major causes of students' anxiety/fear in mathematics? On the factors causing anxiety in mathematics, always (A) and often (O) responses was were collapsed (A+O) and is interpreted as "causes" and sometimes (S) and never (N) responses was also collapsed (S+N) and is interpreted "not causes". On the levels of mathematics anxiety, S+N is interpreted as "low level" of anxiety while the A+O is interpreted as "high level" of anxiety.

The findings revealed that on the factors causing anxiety in mathematics, more than half (70.6%) of the respondents declared that the nature of mathematics factors causes anxiety among them than those who declared not a cause of their anxiety (29.4%). Further, more than half (52.14%) of the respondents declared that the teacher factors also cause anxiety among them than those who declared not causes them anxiety (47.86%). Likewise, more than half (56.5%) of the respondents declared that the student factors cause anxiety among them than those who declared not causes them anxiety (43.5%).

In terms of the level of mathematics anxiety, on the average, more than half of the respondents have high level of anxiety due to the nature of mathematics factors than those having low level. Also, more than half of the respondents have high level of anxiety in mathematics due to teacher factors than those having low level of anxiety. Lastly, more than half of the respondents have high level of anxiety in mathematics due to student factors than those having low level of anxiety.

Keywords-- Mathematics Anxiety, Nature of Mathematics, Students' Interest, Teacher

ISBN: 978-81-970508-2-4

Factors Causing Difficulties in Learning Mathematics Among Senior High School Students in Private and Public Schools in Lanao del Sur Province, Philippines

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Abstract-- This study investigated the learning difficulties in mathematics among senior high school students in private and public schools in Lanao del Sur Province, Philippines, during the school year 2023-2024. A total of 100 Grade 12 students from both school types participated, with data collected using the "Students' Difficulties in Learning Mathematics Questionnaire" (SDLMQ). The study aimed to identify the causes of these difficulties and to assess their levels.

The findings revealed that students in both public and private schools encountered significant difficulty in mathematics, due to three factors: the nature of mathematics, teacher, and student. In public schools, more than half of the students found the logical and analytical nature of mathematics to be the primary challenge, while in private schools, difficulties struggled from the integrative approach to understanding concepts. Teacher-related factor differed between the two settings; less than half of the public school students cited insufficient time for notetaking, while more than half of private school students reported a fast lecture pace and limited opportunities for clarification. Common student-related difficulties included challenges in understanding concepts expressed through symbols, interpreting problems, and translating statements into mathematical representations.

The study also highlighted similar difficulty levels in both groups. In public schools, 46.0% of students experienced a high level of difficulty with the nature of mathematics, closely to 46.8% in private schools. For teacher-related difficulties, 37.9% of public school students and 42.9% of private school students reported low difficulty levels. Student-related challenges were high, with 57.7% of public-school students and 50.0% of private school students reporting significant difficulties.

Keywords-- Senior High School, Students' difficulties, and Learning Mathematics

Attenuation Modulation Effects of Infill Density of the Filament-Based 3D Printed Materials for Radiation Imaging Applications using EpiXS Program

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Abstract-- Additive manufacturing is an emerging technology that encompasses broad spectrum of applications that caters client-specific needs. This study explores the modulation properties of PLA, ABS, and TPU materials in 3D printing for the development of patient-specific shielding designs in radiation diagnostics. By varying the infill density and infill patterns, the research aims to control the penetration of the X-rays to targeted regions, thereby enhancing the image quality and protecting the organs susceptible to damages at the same time. Numerical models are developed to establish the relationship between design density and attenuation, utilizing mass and linear attenuation coefficients calculated from EpiXS and XCOM software. Additionally, key attenuation parameters such as the half-value layer, tenth-value layer, mean free path, and electron density are calculated using the EpiXS program.

The results indicate that adjusting the infill density and design substantially affects the material density and, therefore, the X-ray attenuation properties of the 3D-printed materials. PLA, ABS, and TPU samples with higher infill densities exhibited enhanced attenuation characteristics, making them potentially suitable for use in X-ray applications where precise dose modulation is essential.

This study underscores the significance of optimizing 3D printing parameters to improve the functional properties of printed materials for medical applications, thereby advancing the development of personalized and efficient X-ray therapy solutions.

Keywords-- Attenuation Modulation Effects, Infill Density, Filament, 3D Printed Materials, EpiXS Program

ISBN: 978-81-970508-2-4

A Take-off Point for Retirement Program

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Abstract-- The growing challenges and opportunities presented by the global economy in the twenty-first century are causing an increase in anxiety and instability often in individuals with limited background in financial literacy. The most prone of this occupation are teachers in the public school system who constantly face problems on how to save, plan and prepare for retirement. This study delved on the factors affecting retirement planning focusing the relationship between financial knowledge, attitudes and practices of public school teachers. Descriptive correlational research design was used to 143 respondents complemented by a focus group discussion on high ranking personnel in the Department of Education - El Salvador City Division. The data were analyzed using statistical tests in frequency, mean and correlation. Results revealed that respondents are highly knowledgeable when it comes to financial knowledge. The socio-demographic profile of the respondents particularly age has no significant relationship to the respondents' financial knowledge, attitude, and practices, with the exception of those belonging the 22-40 age group and those in the older age above 40, when age is correlated to financial practices. In conclusion, there is a definite proof of high level financial knowledge and financial practice in this study leading to a better savings and investments with the right financial instruments, and in managing their assets and liabilities. Financial attitude plays an important role as well as in the coordination of financial knowledge and practice. In all, the study recommends building a comprehensive and practical financial literacy program relative to the tenure of the teachers and their impending retirement.

Keywords-- Financial Knowledge, Financial Literacy, Financial Attitude, Financial Practice, Financial Management

Let's Go on a Field Trip: Exploring the Reflection of Field Trip on Gen Zs' Cognitive and Affective Engagement

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Abstract-- This study investigates the reflection of a field trip to one of main broadcasting stations in Malaysia, Radio Television Malaysia (RTM) on Gen Zs' cognitive and affective engagement. With a growing emphasis on experiential learning, the role of field trips in enhancing educational outcomes has garnered significant attention (Menkshi & Braholli, 2020). The research questions of the study are as follows: RQ1: What does the field trip bring to cognitive (attentional focus, imagination and sense of insight) of the Gen Zs before and after the trip? And RQ2: What does the field trip bring to affective engagement (awe and reverence, conflict information and being moved) of the Gen Zs before and after the trip? The study employs a qualitative approach, utilizing interviews as the primary method of data collection. The participants of the study were 15 university students across different grade levels and academic backgrounds who have experienced the field trips. They were given questions pre and post field trips and answers were analyzed by using thematic analysis. By capturing the voices and perspectives of the participants, the study aims to provide valuable qualitative data that shed light on the cognitive and affective engagement of university students related to field trip. Cognitively, students showed improved attentional focus, heightened imagination, and a deeper sense of insight into broadcasting processes. Affectively, the trip evoked awe and reverence, increased awareness of the complexities in broadcasting, and emotionally moved the students, boosting their enthusiasm and motivation for the field. These findings highlight the critical role of experiential learning in bridging theoretical knowledge with practical application, enriching educational experiences, and inspiring career motivation.

Keywords-- Affective Engagement, Cognitive Engagement, Field Trip, Gen Z

ISBN: 978-81-970508-2-4

Enhancing Loyalty through E-Service Quality and Brand Experience: The Role of Customer Satisfaction in Nike's Indonesian Market

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Abstract-- The rapid expansion of digital commerce has significantly elevated part of electronic service quality (e-service quality) and brand experience in influencing competitive strategies, especially for global brands like Nike. As a dominant force in the sportswear industry, Nike has continually adapted to meet its customers' evolving needs, not only by offering innovative products but also by delivering high-quality digital experiences. This study specifically examines Nike's Indonesian market, exploring the effects of e-service quality and brand experience on brand loyalty, with customer satisfaction acting as a mediating variable. There was utilization of a quantitative research design and information was gathered through Google Forms using purposive non-probability sampling, resulting in a total of 207 respondents. The information was examined using Structured Equation Modelling-Partial Least Square (PLS-SEM) to investigate the connections between the variables. The outcomes show that e-service quality has a substantial beneficial result for both customer satisfaction and brand loyalty, indicating that a strong digital service environment is essential to fostering loyalty. Additionally, brand experience constructive effects customer satisfaction, though it doesn't directly impact brand loyalty. Customer satisfaction was also shown that pleasure acted as a mediator in the connection between e-service quality and brand loyalty positively, underscoring its significance in efforts for keeping customers. However, the mediating role of customer satisfaction between brand experience and brand loyalty was not supported by the data. These findings provide valuable insights for global brands like Nike, highlighting the significance of enhancing e-service quality and focusing on customer satisfaction to strengthen brand loyalty in a competitive digital landscape.

Keywords-- e-Service Quality, Brand Experience, Customer Satisfaction, Brand Loyalty, Nike Brand

Fintech Regulations: A Bibliometric Analysis

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Abstract-- This study presents a bibliometric analysis of research trends on regulatory frameworks on Financial Technology (Fintech). This review is to identify key trends, influential authors, leading journals, and emerging themes in this dynamic field. Using the Scopus database, we extracted relevant publications from 1998 to 2024 and employed bibliometric techniques to examine citation networks, co-authorship patterns, and keyword co-occurrences. The results illustrate the evolution of research topics over the years, highlighting significant transitions from traditional regulatory issues to contemporary challenges such as digital currencies, blockchain, and regulatory sandboxes. The analysis also reveals regional and institutional collaborations, demonstrating increased research output from developed and emerging markets. This paper presents a comprehensive overview of the current state of the study. It makes recommendations for future avenues for research into the regulation of Fintech, making it a helpful source for academics, lawmakers, and industry practitioners.

Keywords-- Financial Technology, Fintech, Regulations, Financial Industry, Regulatory Landscape, Bibliometric Analysis, Regulatory Impact

ISBN: 978-81-970508-2-4

Exploring Investment Trends: An In-Depth Study of Investment Behaviour in Delhi NCR

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Abstract-- Investment behaviour is a complex and vital field that warrants thorough examination. This research paper seeks to provide a detailed understanding of the factors that influence people's financial investment decisions, equipping policymakers, financial institutions, and investors with the knowledge to make decisions that can positively affect the global economy.

Currently, developing countries invest just over 30% of their GDP, nearly double the investment rate of high-income countries, which stands at around 17%. This significant disparity underscores the critical role of investment in shaping the future of our world. As the global economy becomes more interconnected, it is increasingly important to analyze and understand investment behaviour to foster positive growth and development.

In this paper, we delve into the key factors that drive individuals' investment decisions, promoting a deeper understanding of the purpose of investment and its transformative potential. By thoroughly comprehending investment behaviour, we can make informed decisions that positively impact our financial future and the world around us.

Keywords-- Investment Behaviour, Investment Decisions, Positive Growth, Financial Future

Analysis of the Entrepreneurial Orientation Impacts of Food and Beverages SMEs in Jabodetabek

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Abstract-- This research shows how entrepreneurial orientation, dynamic capability, and innovation capability impact the performance of food and beverage SMEs in the Jabodetabek area, with competitive advantage acting as a mediating factor. SMEs in this sector face growing challenges in improving performance and maintaining a competitive edge in an increasingly dynamic business landscape. The objective of this study is to show that enhancing entrepreneurial orientation, along with developing dynamic and innovation capabilities, can significantly influence both firm performance and competitive standing.

Data was collected through structured questionnaires distributed to SME owners in Jabodetabek, and the analysis involved regression and mediation techniques. The results demonstrate that entrepreneurial orientation, dynamic capability, and innovation capability strongly influence both firm performance and competitive advantage. Furthermore, competitive advantage serves as an important mediator in the relationship between these factors and performance, emphasizing its role in optimizing business capabilities for better outcomes.

The study suggests that for SMEs to succeed in a competitive market, they need to foster an entrepreneurial approach while continuously adapting and innovating. It contributes to the existing literature by providing empirical evidence on how these capabilities can enhance performance and competitiveness in SMEs. For SME owners and managers, the findings highlight the need to build dynamic and innovative capabilities to remain competitive and ensure sustainable business success. Future studies could explore these dynamics across different industries and regions.

Keywords-- Entrepreneurial Orientation, Dynamic Capability, Innovation Capability, Firm Performance, Competitive Advantage

ISBN: 978-81-970508-2-4

Strategic Management in Building International Relations in Indian Institutions

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Abstract-- In the contemporary global landscape, Indian institutions are increasingly recognizing the pivotal role of strategic management in shaping international relations. This paper explores how strategic management principles are employed by Indian educational and governmental institutions to build and enhance international relations. By integrating strategic management frameworks with international relations theories, Indian institutions are able to navigate complex global dynamics, foster international collaborations, and enhance their global standing.

The study delves into various strategic initiatives undertaken by Indian institutions, such as international partnerships, global research collaborations, and student exchange programs. It highlights the importance of strategic planning, resource allocation, and stakeholder engagement in achieving internationalization goals. Furthermore, the paper examines case studies of successful strategic management practices in Indian institutions, illustrating how these practices contribute to building robust international relations.

Through a comprehensive analysis, this paper aims to provide insights into the symbiotic relationship between strategic management and international relations within the Indian context. It underscores the necessity for Indian institutions to adopt a strategic approach to internationalization, thereby positioning themselves as key players in the global arena.

Keywords-- Strategic Management, International Relations, Indian Institutions

Evaluation of Compressive Strength and Thermal Comfort of Blocks Made from Wood Waste

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Abstract-- Concrete is one of the most widely used materials worldwide and depending on different manufacturing factors, as well as the use of aggregates, the physical-mechanical properties and durability of concrete can be different. The objective of this research was to determine whether the application of lignocellulosic waste (sawdust) in conventional concrete allows for the improvement or detriment of its mechanical, physical and thermal properties. The Peruvian Technical Standard (NTP) and international standards (ASTM) were considered as methodology for the tests of water absorption, density, shrinkage, compressive strength and thermal transmittance.

Of the 4 dosages carried out: traditional concrete (standard), with 2.5% sawdust, with 5% sawdust and 7.5% sawdust. The results show that the blocks with 2.5% and 5% sawdust dosage are classified in category A (Strength greater than 7.5 MPa) which means that they can be used in structural applications, however, the blocks with 7.5% sawdust are classified in category B (Strength between 5.0 MPa and 7.5 MPa), limiting their application in non-structural construction systems. Regarding physical properties, the blocks with 7.5% sawdust dosage show a lower density (1.631 g/cm3) and a higher absorption percentage (9.93%) than all of them, however, this absorption percentage is within the permitted limit for concrete blocks. While the thermal conductivity of the block was low due to the presence of air in the pores of the sawdust which makes it a good insulator; due to this property, blocks with sawdust can improve the energy efficiency of a structure, maintaining more stable indoor temperatures. From the results it can be concluded that the block with 5% sawdust dosage is the most efficient mix design, since it combines good compressive strength, increasing its applicability in the construction industry, as well as adequate thermal and physical behavior, which gives added value to the product as a construction piece.

Keywords-- Sawdust, Blocks, Thermal Comfort, Compressive Strength

ISBN: 978-81-970508-2-4

Enhancing Stunting Detection Accuracy in Children Using SVM with Advanced Data Balancing Techniques

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Abstract-- Stunting is a significant public health concern with long-term consequences for children's physical and cognitive development. Traditional stunting classification methods often fail due to the complexity and imbalance of health data. This study proposes a novel technique combining Support Vector Machines (SVM) with Synthetic Minority Oversampling Technique (SMOTE) and Tomek Links to address these challenges. The proposed method was evaluated on a dataset from Kecapi Jepara, focusing on children's nutritional status before and after vitamin intervention. The results showed a significant improvement in classification accuracy, with an F1-score improvement of 12% and a 10% increase in overall accuracy compared to conventional methods. Specifically, the use of SMOTE and Tomek Links corrected the data imbalance, reducing the misclassification of stunted children by 15%. By incorporating these advanced machine learning techniques, the study offers a robust framework for early stunting detection, providing valuable insights for targeted public health interventions and contributing to global efforts to reduce stunting prevalence.

Keywords-- Stunting Classification, SVM, SMOTE, Tomek Links, Imbalanced Data, Public Health

Mobile Application to Identify Patterns in Cases of Femicide in Surco, through Big Data and Assistance Tracking by Implementing Blockchain and Wearables

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Abstract-- This study aims to address and prevent cases of femicide in Santiago de Surco, Lima, Peru, through an advanced mobile application that identifies patterns and risks using Big Data techniques. The application allows users to report cases of femicide and violence, comparing this data with local police station records to detect patterns and generate relevant statistics. It employs data preprocessing techniques such as one-hot encoding and logistic regression algorithm to analyze large volumes of data, which will allow predicting the risks of femicide. The solution uses the Ethereum Blockchain to store reports through Smart Contracts, ensuring immutability, data transparency and protecting the rights of victims against possible acts of corruption in the justice system. Communication technologies such as Twilio are integrated to send emergency alerts through WhatsApp messages, allowing the user's pre-assigned contacts to track them in real time through an interactive map. The app offers alert activation through wearables and voice actions where manual use is not possible and can operate in the background. This approach combines data analytics, blockchain and attendance tracking techniques to provide a comprehensive solution to the problem, demonstrating its applicability to similar contexts and contributing to the advancement of gender-based violence prevention through technology.

Keywords-- Big Data, Blockchain, Pattern Identification, Wearable, Voice Action

ISBN: 978-81-970508-2-4

An Enhanced YOLOv8 Approach for Trapped Individual Detection Based on Deep Learning

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Abstract-- The Philippines faces significant economic losses annually due to natural disasters, impacting the lives of tens of millions of people. The application of deep learning-based object detection technologies can help to enhance the efficiency of rescue operations by enabling the rapid identification of trapped individuals, thereby mitigating economic and human losses. The demand for lightweight, accurate, and portable models suitable for deployment on unmanned aerial vehicles (UAVs) has emerged as a critical research problem. This study introduces an enhanced You Only Look Once version 8 (YOLOv8) model aimed at improving the detection of trapped individuals in UAV-captured images. The C2f layers in the neck and head networks are replaced with the Cross Stage Partial with Focus-Faster (C2f-Faster) module. This adjustment significantly reduces the model's size, facilitating its integration into UAV systems. Furthermore, a 160x160 output head will be added to improve the accuracy of small object detection. A novel loss function combining Scaled Intersection over Union (SIOU) and Complete Intersection over Union (CIOU) is proposed to address issues related to aspect ratio ambiguity and sample imbalance in bounding box regression. The proposed model shows a 25.94% improvement in detection accuracy and a 29.01% increase in inference speed compared to the baseline YOLOv8 model. This study applies a machine learning model to analyze UAV imagery for faster identification of trapped individuals. The findings indicate that this approach can substantially reduce government expenditures on disaster relief, optimize the efficiency of rescue operations, and save more lives.

Keywords-- People Detection, c2f, C2f-Faster, SIOU, CIOU

Perception of Comfort of Interior Architecture based on the 4 Personality Characters of Hippocrates Galenus

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Abstract-- In the construction process, there is a design and planning process. In the design and planning process carried out by an architect, comprehensive concepts are used from learning outcomes and experience. In some projects, there are problems with client dissatisfaction such as changes in drawings in the middle of implementation and misunderstandings between clients and architects. Many problems arise even though in general architects only provide a maximum of three drawing revisions, so there is no meeting point between the architect and the client. Unwittingly, every human being has a different personality character. Experts have put forward theories of these differences, including the Hippocrates-Galenus personality character theory, MBTI, and Ocean. In this study, the researcher sought a relationship between personality character based on the Hippocrates-Galenus theory, and the perception of comfort in interior architectural space. Thus, if there is a relationship, it will be very helpful for an architect to know the client's personality character in advance so that the design will be more targeted, not based on trial and error. This study uses a quantitative descriptive method, looking for correlation and regression. VR headsets and EEG were used to explore the personality characteristics of 40 respondents who were separated into four categories: choleric, melancholic, sanguine, and phlegmatic. The study covers the senses of sight, hearing, smell, and touch. Researchers found a relationship between personality traits and perception of comfort, where each character (melancholic, choleric, phlegmatic, and sanguine) has a different perception of comfort towards the room's interior.

Keywords-- Interior Architecture, 4 Personality Characters, Hippocrates Galenus

ISBN: 978-81-970508-2-4

Financial Resilience and Interpersonal Support of Single Parents to Cope with the Challenges in the Time of the Pandemic

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Abstract-- The different literature and studies found by the researchers focused primarily on single mothers and if not, single parents in general. There is, however, the lack of focus or attention given to single fathers given that they may or may not have the same situation as with single mothers. The absence of data or study regarding single-fathers does not indicate the presence or absence of situation that single-likely experience by single-mothers. The researchers believed that it is only appropriate that both sexes must be justly represented in the study. The main objective of the study is to determine if there exist a difference and association between the level of financial resilience and interpersonal support among single parents (both male and female) to cope with the challenges caused by the pandemic. This quantitative research study utilized a descriptive-comparative method of research design to established sex disaggregated data from 110 single fathers and 544 single mothers residing in the 1st district of Cavite. The participants of the research are single parents that have at least one child who are aged 17 and below. Participants were chosen using purposive incidental sampling technique. The result of the study among the participants revealed that there seems to be no difference between the frequency that single fathers and single mothers experience challenges. The also findings revealed that most single fathers have below average financial resiliency level while single mothers were averaged. There is also no difference in the interpersonal support that single parent participants regardless of sex received from those around them. Finally, the research found that there is a moderately negative association between the frequency of challenges and financial resilience while weakly positive relationship exists with interpersonal support. On the other hand, no association was found between financial resilience and interpersonal support.

Keywords-- BLEPT, Teachers Education Graduates, Education Graduate Performances

ISBN: 978-81-970508-2-4

Elucidating Suicide Susceptibility Among B40 and M40 in Malaysia

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Abstract-- Suicide cases among Malaysians are increasing from year to year and various causes are assumed to contribute to the occurrence of this phenomenon. This article presents finding from a national cross-sectional study on the susceptibility of suicide tendency among the Malaysian community with regard to two main group in Malaysia that are B40 and M40 groups. A total of 1096 respondents responded to the survey out of the total of 1200 surveys distributed and the SmartPLS 4.0 statistical software application was used to analyze the data. The results showed that technological, social, and faith were found to be significantly and positively related to suicide and (technology) become the key factor within this study. This study also suggested that people who have strong religious or spiritual beliefs tend to have lower thoughts about suicide while adequate social support is pivotal in lowering suicidal thoughts. The variability in findings highlights the need for further research that considers different contexts, methodologies, and populations to better understand the relationship between the likely causes of suicide. It also can lead to the development of community-based support systems and outreach programs, fostering environments that promote mental well-being and reduce stigma in line with current government national policy where psychological wellbeing remains a priority thrust for realizing the National Mental Health Strategic Plan 2020-2025.

Keywords-- Suicide Susceptibility, B40 Group, M40 group, Malaysia, Technological, Social and Faith

ISBN: 978-81-970508-2-4

Analysis of the Logistic Map and Fuzzy Number Generator Encryption Method

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Abstract-- This paper deals with the integration of the as logistic map with the different fuzzy number generators, resulting in a hybrid approach of encryption that can leverage the strengths and randomness of both chaotic dynamics and fuzzy logic. The chaotic maps are influenced by the trapezoidal fuzzification, which produces bifurcation diagrams that have the fundamental structure of the system's dynamics. By analysing the chaotic behaviour of the various maps and their impact on generating the pseudo-random sequences which can be suitable for the encryption, the fuzzy numbers are added to modify the chaotic systems. The proposed hybrid encryption approach is expected to address the limitations of single chaotic map usage and thus to represent a more effective and efficient encryption approach. The proper security analysis and cryptanalysis of the proposed chaotic encryption algorithms are very important to recognize probable vulnerabilities at the very beginning. Optimization methods for a particular device i.e., GPUs (Graphics Processing Units) or FPGAs, as well as parallel processing exploration, will be the key to improving these algorithms in real-world applications.

Keywords-- Gaussian Fuzzy Number Generator, Trapezoidal Fuzzy Number Generator, Logistic Map, Non Linear Dynamic Equation

Design and Implementation of a Practical Training Platform in Digital Forensics: Case Study at the Higher Polytechnic School of Dakar

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Abstract-- This study proposes the design of a platform for practical work in digital forensics within the computer engineering department of the Ecole Supérieure Polytechnique de Dakar, Senegal. The aim is to reinforce students' training by providing them with practical skills in digital forensics. Using an approach combining questionnaires, interviews and secondary data analysis, we assessed the department's current capabilities and identified expert training needs in the face of rising cybercrime. Our results show the importance of developing this platform to bridge the gap in IT security expertise. This initiative aims to prepare a new generation of investigators capable of responding to digital challenges, both locally and sub-regionally.

Keywords-- ESP, UCAD, Forensics, Criminalistics, AWS

ISBN: 978-81-970508-2-4

Investigation on Muscle Activation for Different Type of Sitting Postures

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Abstract-- Investigating muscle activation for different types of sitting postures can provide valuable insights into how various postures affect the musculoskeletal system, which has implications for ergonomics, injury prevention, and even productivity. Electromyography (EMG) signal is a biomedical signal that represents neuromuscular activities by measuring electrical currents generated in muscles during contraction. The problem statements of this project are lack of information based on previous research that demonstrated the comparison of muscle activation across both genders in a sitting posture. Moreover there are also lack of evidence to show the influence of tasks performed in the sitting posture in the relaxed posture by using the EMG device. This non-invasive method tracks the electrical activity produced by muscles, providing insight into their engagement levels during different postures. EMG signal can be evaluated and help to reduce back pain injury during different types of sitting posture. EMG signal is used in this research to evaluate the muscle activation of different genders during a relaxed posture between chairs with and without a backrest, to investigate the influence of tasks performed during a relaxed posture between chairs with and without backrests on muscle activation and to propose the best sitting posture that can help to reduce back pain injury on muscle activation in chairs with and without backrests. Fourteen subjects (14 males and 14 females) were recruited between the ages of 20 and 24 were chosen for the EMG signal acquisition procedure from University Malaysia Perlis. The subject must be asymptomatic back pain. To achieve the study's objectives, each subject sat in two different types of chairs, one with and one without a backrest. The muscle activation was investigated by sitting with a backrest and sitting without a backrest. In a chair with and without a backrest, two different types of tasks were done. The EMG signal from three types of muscles, the Erector Spinae, Cervical Paraspinal, and Trapezius Middle, was recorded using a Delsys Trigno Device. The muscle activation during relaxed posture and the effectiveness of performing the activities were evaluated by comparing the Root Mean Square (RMS) values, Mean Frequency (MNF), and Median Frequency (MDF) from EMG data. From the results, the male subjects have more muscle activation and easy to trigger muscle fatigue while sitting on a chair without a backrest during the relaxed posture. The best sitting posture to reduce back pain injury is a chair with a backrest and it is recommended to sit on these types of chairs regularly to reduce the risk of getting musculoskeletal disorders due to prolonged sitting.

Keywords-- Muscle Activation, Type of Sitting Postures, Electromyography (EMG)

Analysis of the BLEPT Performance of the Teacher Education Graduates of Cavite State University

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Abstract-- The study revealed that the academic performance of BEE and BSE graduates was evaluated in terms of General Education, Professional Education, Major or Field of Specialization. Both groups received Very Good ratings, with BSE showing a slightly higher mean performance in major or field of specialization. Both the performance of BEE and BSE in terms of the Standardized Aptitude Test for Teachers (SATT) were interpreted as Very Good. In terms of the Licensure Examination for Teachers (LET) or Licensure Examination for Professional Teachers (LEPT), a higher percentage OF BEE graduates took the LET immediately after graduation contrary to BSE graduates. The passing rates for those who took the exam immediately were 57.14 percent for BEE and 87.50 percent for BSE.

The BEE and BSE graduates of Cavite State University-Cavite City Campus consistently outperformed the national passing percentage across multiple examination periods. BSE graduates performed better than BEE graduates in March and September 2018, whereas BEE graduates outperformed BSE graduates in subsequent examinations. An independent sample t-test shown no significance difference in LET/LEPT performance between BEE and BSE graduates. In addition, a correlation analysis revealed the significant negative relationship between LET/LEPT performance and academic performance in general and professional education subjects for BEE participants. Furthermore, the findings show no significant correlations between LET/LEPT performance and age, sex, or civil status for either group.

Keywords-- BLEPT, Teachers Education Graduates, Education Graduate Performances

ISBN: 978-81-970508-2-4

Agama dan Sains Modern

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Abstract-- This article presents an in-depth analysis of the complex dynamics between religion and science in the context of the modern era. By exploring convergence, conflict, as well as its philosophical and ethical implications, this research delves into the debates surrounding the relationship between religion and modern science. Utilizing theoretical study approaches and literature analysis, this study aims to comprehend the differing perspectives, including aspects of conflict, alignment, dialogue, and integration between religion and science. This article emphasizes the importance of open dialogue and collaboration between the two disciplines to gain a deeper understanding of the ethical, moral, and scientific developments in contemporary society.

Keywords-- Religion, Modern Science, Conflict, Convergence, Dialogue, Integration, Ethics, Contemporary Era

A Crypto-Spatial Framework for Landslide Susceptibility Assessment and Decision-Making

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Abstract-- Areas where it rains a lot and the ground is unstable, landslides are quite dangerous for people as well as for buildings. Since they are not very accurate or clear, the conventional methods of determining the probability of a place sliding can slow down the decision-making process. Our response to these problems is a crypto-spatial framework based on blockchain technology meant to provide more accurate landslide risk assessments. Blockchain technology cannot be altered and is distributed rather widely. Together with geospatial data analysis, it has produced a fair and dependable approach to data exchange. Blockchain-based verification systems and geospatial analysis of environmental elements, including landforms and rainfall patterns, allowed one to confirm the accuracy of the evaluation data. Often, in areas prone to landslides, field tests ensure that the system operates as it should and consistently. More sensitivity produced more accurate estimations and improved collaboration amongst stakeholders. The present work addresses geospatial data analysis and blockchain technologies meant to reduce disaster risk. This approach increases the safety and efficiency of landslide-prone areas, so enhancing the data dependability and decision-making capacity.

Keywords-- Landslide Risk Assessment; Blockchain Technology; Geospatial Data Analysis; Disaster Risk Reduction; Crypto-Spatial Framework

ISBN: 978-81-970508-2-4

Analysis of the Commodity Balance Policy in Controlling Import and Export of Iron and Steel Commodities

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Abstract-- The Commodity Balance Policy was established through Presidential Regulation No. 32 of 2022. This dissertation analyzes the policy using qualitative methods, collecting data through interviews and Focus Group Discussions (FGD) with five informants representing regulators, operators, the iron and steel industry association, and academia.

At the time of the study, only five commodities—rice, beef, fish, sugar, and salt—were included in the Commodity Balance, while iron and steel, as strategic commodities, were not mandated. This delay is attributed to the unpreparedness of regulators and businesses, alongside the numerous HS Codes for iron and steel, impacting the readiness of the National Commodity Balance System (SINAS NK).

Data analysis using NVIVO version 14 for Mac revealed that technology significantly influences the successful implementation of the commodity balance policy, with stakeholder synergy as a secondary factor.

To establish novelty, a Systematic Literature Review (SLR) was conducted, referencing prior studies on the topic and integrating multiple theories (Economic, Social, Political, National Sovereignty, and National Resilience) to support public policy analysis.

The findings suggest that government regulation is essential for domestic products to compete with imports in global markets. The dissertation recommends that the implementation of the Commodity Balance Policy should leverage information technology and ensure disciplined usage among stakeholders. The government must also upgrade data storage capacity and information technology to facilitate the process effectively.

Keywords-- Commodity Balance Policy; Iron and Steel Commodities; Qualitative Methods; HS Codes; Technology Implementation; Public Policy Analysis

Eco-literacy: Enhancing Children's Writing Skills in Creating Literary Works through *Tadabbur* Nature at Bumi Langit Institute Yogyakarta

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Abstract-- This research integrates literacy, encompassing not only reading and writing activities but also science and technology. Eco-literacy is regarded as a crucial thinking skill in the early learning process. One effort to develop this understanding is through reflections activities, which involve observation, interaction, and nature-based learning. Bumi Langit, Imogiri, Yogyakarta, serves as one of the facilitate nature-based education that foster eco-literacy through reflection activities. The research methodology utilized in this nature-based education is a phenomenological approach, which harnesses children's experiences as part of the learning process and integrates reflections as a learning institutions that medium. The research findings show that reflection activities can both enrich children's imagination, enhance their creativity in writing skill and also improve their literacy.

Keywords-- Eco-Literacy, Reflections, Writing Skills, Children's Literature

ISBN: 978-81-970508-2-4

Teaching Factory (TEFA) Management Model in Increasing the Competency of Students in the Hospitality Sector in the Tourism Department of the Manado State Polytechnic

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Abstract-- Tourism department has four study programs, namely Applied Hotel S1 Study program, Hotel D 3 Study Program, Tour and Travel Business D 3 Sudy Program and Under Water Ecotourism D3 Study Program. Most of the Tourism Department graduates have been absorbed by industries both tourism industries and others. The final projects become the prerequisites for the students to obtain certificates besides the competence certificates.

Teaching Factory Learning is a learning concept in vocational education based on goods and services production referring to the standards and procedures applied in industries and carried out in a nuance similar to that of industries. This teaching factory learning is expected to produce graduates who suit the business and industry needs (DU/ DI). Some basic values that need to be developed in order to support the preparedness of teaching factory implementation are : a. sense of quality: providing the students with basic skills in relation to quality objective standards . b. Sense of efficiency: supplying the students with the ability to work efficiently in order to produce optimal work efficiency and to measure the productivity level like a common practice in industries. c. Sense of creativity and innovation: teaching the students to work hard creatively and innovatively, training them in problem solving as a measure of creativity, and abilities to see new opportunities in industries such as products and designs.

This research aims to investigate (1) The implementation of teaching factory learning program, (2) Teaching factory based on production unit, (3) Implementation of factory teaching learning program in enhancing the students' entrepreneurial spirit. The method used in this research is Descriptive with a qualitative approach. The data are collected through observation, documentation, interview and limited trial.

The results of the research show that the students competence with this factory learning model (TEFA) have increased and their responsibilities in doing their jobs are in a very good level viewed from the current curriculum MERDEKA BELAJAR KAMPUS MERDEKA (MBKM). Hotel subject is integrated with front office, F&Beverage Service, Food & Beverage Product, House keeping, Marketing, Accounting, Purchasing that are used as the main materials in Teaching Factory (TEFA). Semester 3 consisting of classes blocked for these activities showed an increased competence. They have shown good competence in serving foods and drinks as well as have given a feeling of comfort to the guests who stay and have meals.

Keywords-- Learning Model, Teaching Factory, Competence, Hotel

Adaptive Scheduling Heuristic Priority Linear Regression (ASH-PLR): A Novel CPU Scheduling Algorithm using Predictive Priority Levels

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Abstract-- Inadequate implementation of parameters such as priority levels can be seen in many common and contemporary scheduling algorithms which can lead to starvation. With the rise of industry 4.0, the advancement of computers and operating systems require more efficient and optimized scheduling algorithms to assess big data. This study aims to explore and develop a novel and heuristic approach to scheduling algorithms by incorporating predictive models in machine learning, more specifically the linear regression model to predict and allocate the most efficient priority level to each process upon execution. The newly developed ASH-PLR algorithm was tested against common and contemporary scheduling algorithms such as the FCFS, AMRR, and the MMRRA in terms of their Average Turnaround Time, Average Waiting Time, and Context Switches. The results indicate that the ASH-PLR is the superior scheduling algorithm when it comes to processes that have shorter burst times and extensively outperforms the FCFS and MMRRA in terms of Average Turnaround Time and Average Waiting Time. ASH-PLR displays the ability of predictive models to be integrated in future algorithms for better optimizations in upcoming new technology.

Keywords-- Heuristic Priority Linear Regression (ASH-PLR), CPU, Predictive Priority Levels

ISBN: 978-81-970508-2-4

Gas Leakage Risk Management of Biogas Powerplant using ALOHA Gas Dispersion Modelling and Bowtie Analysis

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Abstract-- Incidents of biogas leaks at biogas power plant facilities will release toxic and flammable chemicals, so it is necessary to carry out risk management process to minimize the potential for incidents which could endanger employees and the community around the biogas power plant. This research was carried out with the aim of analyzing the risk of incidents of biogas leaks from biogas power plant facilities and recommendations for mitigation measures for gas leak incidents in biogas power plant facilities. For the case of a gas leak incident there are many factors that will affect the level of consequences resulting from the gas leak, these consequences can range from disruption to the health of employees and residents around the biogas power plant facility, property damage, to mass death and this incident can be categorized as Tier 1. - Process Safety Event Indicator. This research was carried out at one of the Biogas Power Plant facilities located in Riau Province using the ALOHA software to determine the spread of gas leaks and bowtie analysis to determine preventive and mitigative measure of gas leakage incident.

Keywords-- Gas Leakage, Biogas Powerplant, ALOHA Gas Dispersion Modelling, Bowtie Analysis