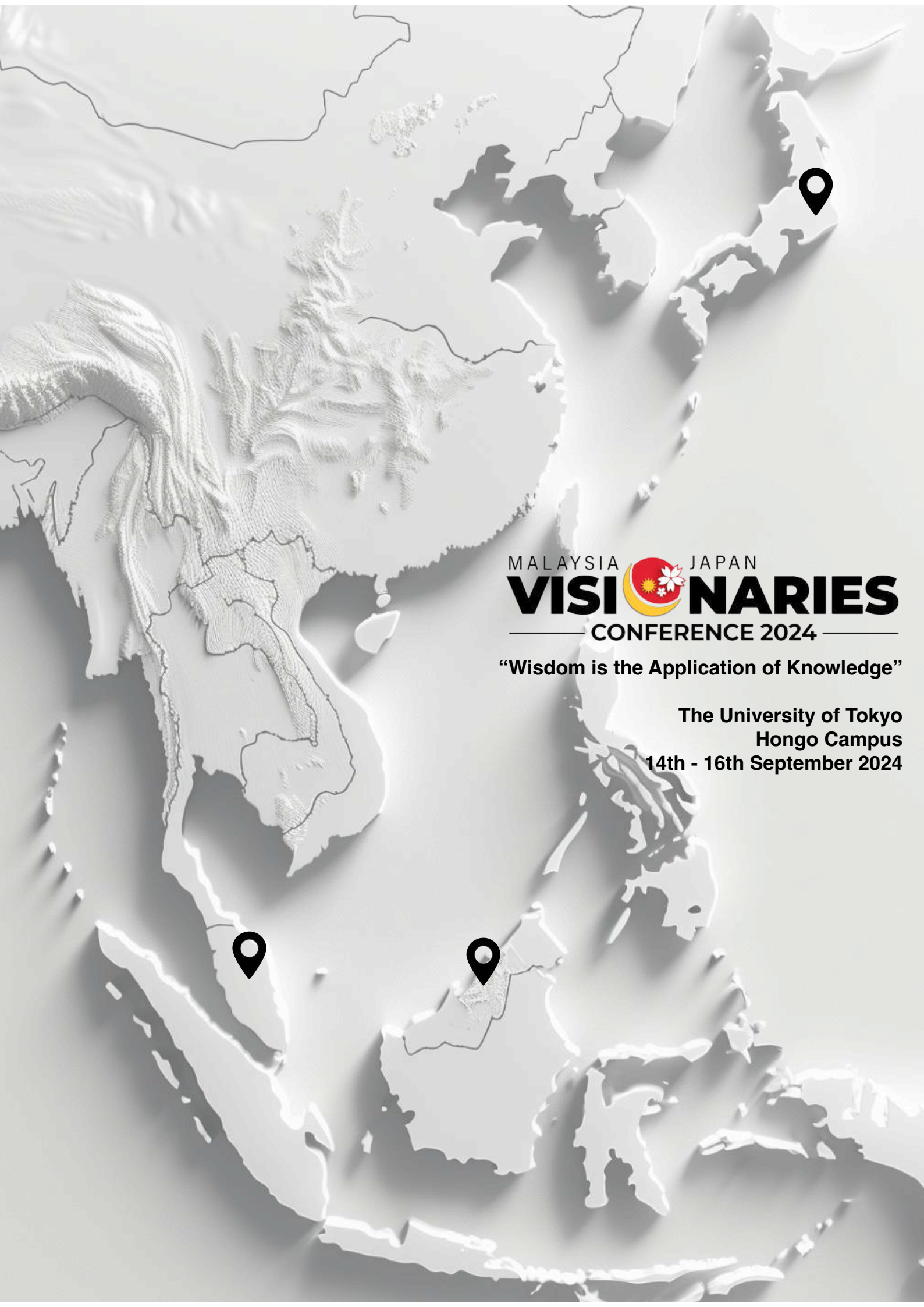


MALAYSIA JAPAN

VISIONARIES

CONFERENCE 2024

“Wisdom is the Application of Knowledge”

The University of Tokyo
Hongo Campus
14th - 16th September 2024

Table of Content

For access to UTokyo-Guest Wi-Fi,
please scan the following QR code for more information:

Preface

The first Malaysia-Japan Academic Scholar Seminar (MJASS) 2012 was organized on 10th November 2012 in conjunction with the 30 years celebration of the Malaysia's Look East Policy (LEP). Malaysian Fourth Prime Minister Tun Dr. Mahathir Mohamad announced the LEP on the 8th of February 1982 and until now more than 15,000 Malaysians studied or trained in more than 60 Japanese institutions. In the following year, the Malaysia-Japan Academic Scholar Conference (MJASC) 2013 was built on the success of its predecessor, drawing a diverse array of scholars and researchers.

To emphasize the forward-thinking nature of the event, MJASS has since evolved into the Malaysia-Japan Visionaries Conference (MJVC), organized by the Malaysia-Japan Academic Association (MJAA). MJVC continues to provide a unique platform for a diverse community engaged in fostering Malaysia-Japan relations, facilitating the exchange of knowledge and information about the latest research.

Renowned for its comprehensive format, MJVC includes keynote lectures, panel discussions, poster and oral presentations. It serves as a valuable venue for knowledge gathering and sharing, thus becoming a primary source of information about research and studies undertaken by Malaysian and Japanese students in Japan.

Greetings from the Committee Chair

Welcome to the Malaysia-Japan Visionaries Conference 2024. Our theme, "Wisdom is the Application of Knowledge," aims to foster dialogue and knowledge exchange across various academic fields, creating a strong professional network between scholars from Malaysia and Japan.

We are pleased to announce that high-quality papers accepted for the conference will be published in a proceedings book titled 'Proceedings of the Malaysia-Japan Visionaries Conference 2024 – Integration and Innovation across Diverse Disciplines,' through a contract with Springer Nature.

The conference has received 180 abstracts, with 150 intended for full-paper submission, significantly surpassing our initial target of 100 papers. This remarkable achievement would not have been possible without the invaluable contributions of all involved parties, and our 140 Technical Program Committee (TPC) members, who played a crucial role in reviewing the submitted papers, distributing the Call for Papers (CFP), and promoting the conference.

This year, with the Malaysia Students Association of Japan (MSAJ) joining us as our career fair partner, we aim to bring added value to the student community by enhancing their research exposure and opening doors to new career opportunities.

We extend our deepest thanks to the International Advisory Board members, the conference committee, and our collaborators: KESUMA-TalentCorp-MyHeart, the Embassy of Malaysia in Tokyo, the School of Engineering at The University of Tokyo, the Japan Graduates' Association of Malaysia Japan Branch (JJB), the Malaysian Students' Association in Japan (MSAJ), the Center for Malaysia Studies at Soka University, the Malaysia-Japan International Institute of Technology (MJIIT)-Universiti Teknologi Malaysia (UTM)-UTM Alumni, STEPAN-UNESCO, the Alumni Look East Policy Society (ALEPS), and the IMAN Japan Branch for their unwavering support.

We are profoundly grateful to each of you for your steadfast support of this conference. We trust that your participation will not only enrich your experience but also catalyze new partnerships and research endeavors, nurturing the next generation of leaders who will shape the future of our nations.

Dr. Amy Poh Ai Ling
Chair of MJVC 2024

Malaysia-Japan Academic Association (MJAA) Committee Board

International Advisory Board Members

Professor Tanaka Kenji

Professor Masahiko Horie

Chair

Dr. Amy Poh Ai Ling

Vice Chair

Kee Li Bing

Vice Chair

Aina Syazwina binti Sazali

Secretary

Dr. Suhaila binti Rusni

Treasurer

Goto Yong Siew See

Treasurer

Adele Poh Ai Qi

Treasurer

Soo Jung Cheng

TPC Manager

Dr. Fitriah Azizan

TPC Manager

Dr. Hazlina binti Junoh

TPC Manager

Nurtasbiyah binti Yusof

TPC Manager/ Secretary

Dr. Noraiza Suhaimi

Publication

Dr. Huong Kai-Hee

Publication

Dr. Juhaida Abu Bakar

Publication

Sasha A/P SoomNeck

Publication

Imdad Azman

Publication

Ts. Dr. Abdul Nasir bin Abd Ghafar

Secretariat

Kok Yu Hui

Secretariat

Ilya Maisarah binti Thariq

Secretariat

Prof. Mohamad Ghozali bin Hassan

Registration

Dahlia Sheherazade Aishah

Registration

Sharifah Nurul Sharihah

Registration

Azrin binti Ahmad

Registration

Fira Diana Shaffila Bt Muhd Kamar

Protocol

Muhamad Izham bin Abd Shukor

Protocol

Sally Fong Foong Sin

IT

Wan Rabiatul Adawiyah binti Wan Hasbullah Saidi

IT

Andreen Poh Ai Chin

IT

Natalie Lau Wen Xing

IT

Athena Lateesya Gary

Website

Muhamad Firdaus Ali

Publicity

Assoc. Prof. Husna Zainal Abidin

Publicity

Iman Farhana binti Juanih

Publicity

Tuan Nurul Alia Tuan Ismail

Publicity

Dr. Nur Izzaty Mohamad

Program Manager

Assist. Prof. Wong Sing Ying, Esther

Program Manager

Pavitra Thevi Arnandan

Logistics

Tay Chean Zer

Other committee members:

Protocol
Nur Intan Farihah
Yap Ying Moi

Registration
Hazel Phang Yu Ting

Publicity
Fatimah Al Zahra binti Azman
Sarah Hanani binti Ahmad Tajuddin

IT
Yuki Murosaki

Sponsorship
Muhammad Umair
Zaida Zainuddin
Audrey Chen
Kosaku Nakano
Jeannette Lee Sui Linn
Sophie Lim Hooi Liang

International Proceedings Committee

Proceedings of the Malaysia-Japan Visionaries Conference 2024 – Integration and Innovation across Diverse Disciplines

Editors

Dr. Amy Poh Ai Ling	University of Tokyo
Dr. Huong Kai-Hee	Tokyo Institute of Technology
Dr. Fitriah Azizan	Meiji University

Publication Team

Dr. Huong Kai-Hee	Tokyo Institute of Technology
Imdad Azman	Meiji University
Teh Huijia	Waseda University
Sasha A/P SoomNeck	University of Nottingham

Technical Program Committee (TPC) Members

Academic

Dr. Abdul Nasir bin Abd Ghafar	Universiti Malaysia Pahang Al Sultan Abdullah
Assoc. Prof. Dr. Aini Suzana Ariffin	Universiti Teknologi Malaysia
Assoc. Prof. Dr. Boumahdi Fatima	Blida 1 University, Algeria
Dr. Chan Ling Meng	Tunku Abdul Rahman University of Management and Technology
Dr. Chong Chu Le	Tunku Abdul Rahman University of Management and Technology
Prof. Dr. Chong Fatt Seng	Shobi University
Dr. Christine Shobana Arthur	Sunway University
Assoc. Prof. Dr. Ebenezer Chitra Fabian	IMU University
Dr. Erialdi Bin Syahrial	Universiti Malaya
Dr. Farah Abd Yunos	Sunway University
Dr. Farah Liana binti Mohd Redzuan	UTM-MJIIT
Dr. Farha Naomi Omar Farouk	Tokyo Medical and Dental University
Dr. Faten Ermala binti Che Othman	Singapore University of Technology and Design
Assoc. Prof Dr. Fawad Hussain	SZBIST University
Dr. Felipe Vejarano	The University of Tokyo
Assoc. Prof. Dr. Ferdaus Mohamat Yusuff	Universiti Putra Malaysia
Dr. Fong Chng Saun	Institute for Advanced Studies, Universiti Malaya

Dr. Foo Yee Loo	Multimedia University
Dr. G. Manickam Govindaraju	Taylor's University
Ms. Grace Flavyeliz Sinong	Universiti Teknologi MARA
Dr. Halimah Mohamed Ali	Universiti Sains Malaysia
Dr. Hani Alqaan	KACST
Dr. Hassan Mohamed	Universiti Tenaga Nasional
Assoc.Prof. Dr. Hassanudin Bin Mohd Thas Thaker	International Islamic University Malaysia
Dr. Hazirah Syahirah binti Zakria	Mie University
Dr. Hazlina Binti Junoh	Mie University
Assoc. Prof. Dr. Husna Zainal Abidin	Wakayama University
Dr. Ibrahim Majdi Bin Mohamad Kamil	Universiti Sains Malaysia
Prof. Dr. Ichiro Sugimoto	Soka University
Assoc. Prof. Dr. Ina Salwany	Universiti Putra Malaysia
Dr. Ireena Nasiha binti Ibnu	Universiti Teknologi MARA
Mr. Ishak bin Haji Abd Rahman	National University of Malaysia
Assoc. Prof. Dr. Janice Nakamura	Kanagawa University
Ir Dr. Jegalakshimi Jewaratnam	Universiti Malaya
Mr. Jothiraj Selvaraj	SRM Institute of Science and Technology
Dr. Kelvin Lee Yong Ming	Taylor's University
Dr. Kenshi Suzuki	The University of Tokyo
Prof. Dr. Khairuddin Ab Hamid	University of Technology Sarawak
Dr. Khalilah binti Abd Hafiz	Management and Science University (MSU)
Assoc. Prof. Dr. Lai Kee Huong	Taylor's University
Dr. Lee Hoi Leong	Universiti Malaysia Perlis
Dr. Leong Ken Yien	Sunway University
Dr. Lim Chee Ann	Universiti Sains Malaysia
Dr. Lim Chui Seong	Tunku Abdul Rahman University of Management and Technology
Prof. Dr. Lim Lee Wah	Gifu University
Assoc.Prof Looi Chung Yeng	Taylor's University
Assoc.Prof. Dr. Low Cheng Yee	Universiti Tun Hussein Onn Malaysia
Dr. Mansour Amini	Universiti Sains Malaysia
Dr. Mohamed Salem Mohamed Othman	Universiti Sains Malaysia
Ts. Dr. Mohd Anuaruddin Ahmadon	Yamaguchi University
Assoc.Prof. Dr Mohd Faiz Hilmi	Universiti Sains Malaysia
Dr. Mohd Faizal Hamzah	Universiti Malaya

Dr. Mohd Faizul Idham	Universiti Teknologi MARA
Dr. Mohd Nazri bin Abdul Rahman	Universiti Malaysia Sabah
Dr. Mohd Syahlan Mohd Syukri	Universiti Malaysia Sabah
Dr. Mohd Termizi bin Yusof	Universiti Putra Malaysia
Assoc. Prof. Ts. Dr. Mohamad Ghozali bin Hassan	Universiti Utara Malaysia
Dr. Mohamed Aslam Akbar	International Islamic University Malaysia
Dr. Mughaneswari Sahadevan	Management and Science University
Dr. Muhammad Aiman bin Mohd Nor	Keio University
Dr. Muhammad Febriansyah	Universiti Sains Malaysia
Mr. Muhamad Ridzuan bin Radin Muhamad Amin	Universiti Malaysia Pahang Al-Sultan Abdullah
Dr. N Alia Fahada W Ab Rahman	Universiti Malaysia Terengganu
Dr. Nadia Farhana Azman	Universiti Teknologi Malaysia
Dr. Nadiatul Shakinah Abdul Rahman	Universiti Sains Malaysia
Assoc. Prof. Ir. Dr. Nasharuddin Zainal	Universiti Kebangsaan Malaysia
Dr.Nicholas Lee Boon Kheng	Sunway University
Ir. Gs. Ts. Dr. Nik Mohd Zarifie Hashim	Universiti Teknikal Malaysia Melaka
Ms. Nik Nurhidayu Binti Nik Mut	Korea University
Dr. Noor Baity Saidi	Tokyo University of Agriculture and Technology
Dr. Nuor Sariyan Suhaimin	Universiti Teknologi Malaysia
Ts. Dr. Nur Azrini Binti Ramlee	Universiti Teknologi MARA
Dr. Nur Atirah Kamaruzaman	Universiti Putra Malaysia
Assoc. Prof. Dr. Nur Hashimah Binti Alias	Universiti Teknologi MARA
Dr. Nur Hazirah binti Rozali Annuar	Universiti Teknologi MARA
Dr. Nur Izzaty Mohamad	Universiti Sains Malaysia
Dr. Nur Zalikha Khalil	Universiti Malaysia Pahang Al-Sultan Abdullah
Dr. Norain Binti Abdullah	Kindai University
Dr.Noraindah Abdullah Fahim	Universiti Teknologi Malaysia
Dr. Norazlina Mohammad Ridhwan	Universiti Malaysia Sabah
Assoc.Prof. Dr. Norizan Binti Azizan	Albukhary International University
Dr. Norliza Binti Julmohammad	Universiti Malaysia Sabah
Dr. Nurhazimah binti Nazmi	Universiti Teknologi Malaysia
Dr. Nurshahira Binti Ibrahim	Universiti Teknologi MARA
Ms. Ong Sin Ru (Doris)	Universiti Teknologi Malaysia
Assoc. Prof. Dr. Patricia Matanjun	Universiti Malaysia Sabah
Dr. Pin Jern Ker	Sunway University

Dr. Por Fei Ping	Tunku Abdul Rahman University of Management and Technology
Dr. Rakhi Mutha	AMITY University Rajasthan
Assoc. Prof. Dr. Roslizawati Che Aziz	Universiti Malaysia Kelantan
Dr. Rosmah Binti Mohamed	Universiti Putra Malaysia
Dr. Rozzeta binti Dolah	Universiti Teknologi Malaysia
Dr. Saslina Kamaruddin	Sultan Idris Education University
Dr. Sathiabama T. Thirugnana	OTEC Universiti Teknologi Malaysia
Dr. Shirley Gee Hoon Tang	Universiti Kebangsaan Malaysia
Dr. Siti Haslina Binti Mohd Shafie	Universiti Sains Malaysia
Dr. Siti Marsila binti Mhd Ruslan	Universiti Malaysia Terengganu & Kyoto University
Ms. Siti Norazian Ismail	Universiti Teknologi MARA
Dr. Siti Rahyla Rahmat	Universiti Sains Malaysia
Dr. Siti Suraya Abd Razak	Universiti Teknologi Malaysia
Assoc. Prof. Dr. Soon Jan-Jan	Universiti Utara Malaysia
Dr. Sunchai Phungern	Kasetsart University
Prof. Dr. Sundaramahalingam Subramaniam	Mepco Schlenk Engineering College, Sivakasi
Dr. Suzana Ariff Azizan	Universiti Malaya
Dr. Syafiq Faliq bin Alfan	Universiti Malaya
Dr. Sylvia Sandanamsamy	Universiti Kuala Lumpur, Royal College of Medicine Perak(UNIKL-RCMP)
Dr. Tamal Chakraborty	Raja Narendra Lal Khan Women's College (Autonomous)
Dr. Tan Bee Wah	Universiti Utara Malaysia
Dr. Thanam A/P Subramaniam	Taylor's University
Dr. Tengku Fauzan Binti Tengku Anuar	Universiti Malaysia Kelantan
Assoc.Prof. Dr. Tengku Intan Suzila Tengku Sharif	Universiti Teknologi Mara
Dr. Wendy Teoh Ming Yen	Universiti Teknikal Malaysia Melaka
Assoc. Prof. Dr. Thinagaran Perumal	Universiti Putra Malaysia
Assoc.Prof. Dr. Thoo Ai Chin	Universiti Teknologi Malaysia
Dr. Wahyuni Masyidah binti Md Isa	Universiti Malaya
Dr. Wan Cheong Kin	Tunku Abdul Rahman University of Management and Technology
Dr. Wong Siew Chin	Tunku Abdul Rahman University of Management and Technology
Assoc.Prof. Dr. Wong Sing-Sing	University of Technology Sarawak
Assoc.Prof. Dr. Wong Won Fen	Universiti Malaya
Prof. Dr. Yong Zulina Zubairi	Universiti Malaya

Prof. Dr. Yoshimitsu Uemura	Universiti Teknologi PETRONAS
Mr. Zainol bin Mustafa	Universiti Kebangsaan Malaysia
Dr. Zulhasni bin Abdul Rahim	Universiti Teknologi Malaysia
Assoc. Prof. Dr. Zuraidah Sulaiman	Universiti Teknologi Malaysia

Industry

Mr. Abdul Raof	Hirose Electric (M) Sdn Bhd
Ms. Adele Poh Ai Qi	OCBC Limited
Mr. Albert Cheng Ming Hua	AKITO Global Inc.
Prof. Awaluddin bin Mohamed Shaharoun	Pertubuhan IKRAM Malaysia
Ms. Elda Nurafnie Ibnu Rasid	Institute for Medical Research, Malaysia
Ir. Goh Siao Fong	UTP, Inti
Mr. Heah Lee Meng	Anson Heah
Mr. Isaac Eng Ting Lee	Nihon L'Oreal K.K. 日本ロレアル(株)
Ms. Jeannette Lee Sui Linn	Microsoft Japan
Dr. Jennifer Chia Wee Fern	Air Liquide Global E&C Solutions
Mr. Kobayashi Akisato	Nippin Corporation
Mr. Koek Seng Chye	Schueco Japan KK
Dr. Manoj Lakshmanan	ZACROS Malaysia Sdn. Bhd.
Dr. Marshila Kaha	Chitose Group
Mr. Michael Tiong Hoe Hee	JAGAM
Mr. Mohamad Hapiz bin Mohd Rosli	GEA Japan Ltd
Mr. Mohamad Syukri Bin Abdul Aziz	Daikai Intergrasi S/B
Dr. Noraidah binti Haini	Sabah Forestry Department
Dr. Nur Hotimah binti Yusof	PharmEng Technology
Ms. Nurul Anissa Binti Rosman	Oval Corporation
Mr. Rajdeep Das	BitsGate
Mr. Saigurudatta Pamulaparthyvenkata	VillageMD
Dr. Siow Chun Lim	The Institution of Engineers Malaysia & Multimedia University
Ms. Shahkillahwati Mohd Ridhwan	Tiger Balm (M) Sdn Bhd

*The list of TPC members is updated regularly. For the most current and complete list, please visit http://mjvc.jp/tpc/

Malaysia-Japan Visionaries Conference (MJVC) 2024 Schedule

Day 1 Saturday, 14th September, 2024	
Venue: Sanjō Conference Hall, 2F	
09:00 – 09:45	**Registration**
09:55 – 10:00	The arrival of H.E. Ambassador of Malaysia to Japan
10:00 – 10:05	Welcoming speech by MJVC Chair
10:05 – 10:10	Welcoming speech by MSAJ President, representative of Career Fair
10:10 – 10:20	Opening speech by H.E. Ambassador of Malaysia to Japan
10:20 – 10:25	Official opening of MJVC follow by MJVC promotional video
10:25 – 10:55	Keynote speech by Prof. Tanaka Kenji
10:55 – 11:05	Photo session
11:05 – 11:15	**Announcement and Closing**
11:20 - 12:00	**University of Tokyo Campus Tour**

On this day, the MSAJ career fair will also be held from 10:00-17:00. For further information, please visit: MSAJ's Instagram @official_msaj or <msaj.my/careerfair>

For the most up-to-date schedule, please scan the following QR code:

Day 2 Sunday, 15th September, 2024

Venue: Engineering building no. 2 and no. 3

08:00 - 09:00	**Registration**

Venue for registration: Engineering building no.3 / 3F / Lounge area
After registration, all events in the morning session will be held in Engineering building no.3 / Room 320, 321, 322

09:00 - 09:10	Welcoming speech by the Vice Dean of the School of Engineering, The University of Tokyo
09:10 - 09:20	Photo Session with all VIPs
09:20 - 10:00	Keynote speech by Prof. Ts. Dr. Ali Selamat
10:00 - 11:00	Panel discussion
11:00 - 12:30	Engagement session by MSAJ
12:30 - 12:50	Entrepreneur guidance workshop by JAGAM
12:50 - 13:50	**Lunch Break**

Venue for lunch: Engineering building no. 2 / 1F / Hall 13B. For the parallel sessions after lunch, all activities will be in Engineering Building no.3. Please refer to the QR code for detailed schedules and venue information.

13:50 - 14:30	Parallel Session 1: Poster Presentation
14:30 - 16:10	Parallel Session 2: Oral Presentation
16:10 - 16:40	Refreshment and networking
16:40 - 18:20	Parallel Session 3: Oral presentation
18:20 - 18:30	**Photo session and Closing of parallel session**

Venue for photo session and closing of parallel session: Engineering building no.3 / Room 320, 321, 322

18:30 – 20:00	**MJVC 2024 Banquet**

Venue for Banquet: Engineering building no.2 /1F / Room 213

Welcome speech by Prof. Tanaka Kenji, co-host of MJVC

Shakuhachi performance by Lim Wei Loon

Bon-odori performance by AGEHA

Video of the making of MJVC 2024

20:00 – 20:10	**Closing speech by MJVC Chair**

For the morning session, refreshments will be provided to all participants. We encourage you to help yourself to refreshments or breaks as needed, but kindly request that you do so with consideration to ensure minimal disruption to the speakers on stage. Additionally, lunch and refreshments will be provided during the afternoon session

For the most up-to-date schedule, please scan the following QR code:

For oral and poster presentation schedule and venue details, please scan the following QR code:

Fly Home with Us: Celebrate Malaysia Day at The University of Tokyo!

Day 3 Monday, 16th September, 2024

Venue: Takeda hall at Takeda building, 5F (武田先端知ビル5階)

08:00 – 09:00	**Registration**
09:00 – 09:40	Keynote speech by Prof. Masahiko Horie
09:40 – 10:10	Sharing session by STEPAN-UNESCO
10:10 – 10:30	Launch of the UTM-MJIIT Alumni Japan Chapter
10:30 – 10:50	Award Ceremony
	TalentCorp Malaysia Travel Grant Award
10:50 – 11:10	Certificate Award
11:10 – 11:20	Promotional video message followed by the playing of “Negaraku” to commemorate Malaysia’s Day
11:20 – 11:30	Photo Session
11:30 – 11:35	Announcement
11:35– 11:45	**Closing speech by CEO of TalentCorp**

For the most up-to-date schedule,
please scan the following QR code:

Keynote speakers

Professor Tanaka Kenji
Resilience Engineering Research Center/ Department of Technology Management for Innovation,
Graduate School of Engineering,
The University of Tokyo

Keynote title:

Engineering Social Systems: Innovations, Challenges, and Future Directions (Engineering Forefront)

Professor Tanaka Kenji is a Professor at the University of Tokyo's Graduate School of Engineering, specializing in technology management strategy. His academic journey, highlighted by a Doctor of Engineering from the University of Tokyo, is complemented by rich professional experiences at McKinsey & Company and Japan Industrial Partners, Inc. These roles have deeply informed his expertise in bridging the gap between technological innovation and strategic management.

In his initiative since 2017, Professor Tanaka has been at the forefront of the IoE (Internet of Energy) social cooperation program, driving research and education in technology management. His contributions extend beyond academia, serving as a policy advisor and technical committee member in various prestigious organizations, reflecting his significant impact on the field of technology management and policy.

Professor Ts. Dr. Ali Selamat
Acting Dean, Malaysia Japan International Institute of Technology (MJIIT), Universiti Teknologi Malaysia (UTM)
Deputy Vice Chancellor (Student Affairs & Alumni), UTM

Keynote title:

Advancing Collaboration and Exchange of Knowledge Between Malaysia and Japan for AI-Driven Innovation

Prof. Ali Selamat holds a B.Sc. (Hons.) in IT from Teesside University (1997), an M.Sc. in Distributed Multimedia Interactive Systems from Lancaster University (1998), and a Dr. Eng. degree from Osaka Prefecture University (2003). Prof. Ali is currently a Deputy Vice Chancellor (Student Affairs & Alumni), UTM and acting Dean of Malaysia Japan International Institute of Technology (MJIIT). MJIIT is an educational institute established by the Ministry of Higher Education Malaysia to enhance Japanese Oriented Engineering Education in Malaysia and Asia with the support from the Government of Japan through Japanese International Cooperation Agency (JICA) and Universiti Teknologi Malaysia (UTM) together with 30 Japanese University Consortium (JUC). He serves on the international advisory council for University of Hradec-Kralove, is a member of the Japan-ASEAN Science, Technology and Innovation Platform (JASTIP) and the Asia-Oceania Five Universities Alliance (AOFUA), and participates in the Campus-in-Campus (CiC) initiative for sharing research and educational resources among partner universities. Prof. Ali is also involved in the selection committee for JICA Young Researcher Research Grants, and serves as an evaluator for the Fundamental Research Grant Scheme (FRGS) and Prototype Research Grant Scheme (PRGS) under Malaysia's Ministry of Higher Education. His research interests include data analytics, digital transformations, knowledge management in higher education, key performance indicators, cloud-based software engineering, software agents, information retrievals, pattern recognition, genetic algorithms, neural networks, and soft-computing.

Professor Masahiko Horie
Advisor at Japan Committee of International Union for Conservation of Nature (IUCN-J)
ex-Special Advisor to the President of Meiji University
Visiting Researcher at Meiji University Institute of Global Affairs (MIGA)
ex-Ambassador of Japan to Malaysia
ex-Ambassador for Global Environmental Affairs

Keynote title:

Charting Progress: Current Twin Crisis of our Planet and Challenges of Sustainable Development Goals (SDGs)

His Excellency Professor Horie Masahiko holds the position of Special Advisor at the Japan Committee of IUCN and gives special lectures at Tsukuba University, Waseda University, Kwansei Gakuin University on global issues. He attended a series of COPs of Climate Change and Biological Diversity when he served as Ambassador for Global Environmental Affairs of Japan. He chaired the 48th International Tropical Timber Council (ITTC) in 2012 and he was elected twice as Councilor of the International Union for Conservation of Nature (IUCN) in 2012 and 2016.

Concurrently he was appointed as an Advisory Board member of UN SE4All and he contributed to set up the Energy Efficiency Improvement Facilitation Hub in Tokyo.
He was Professor at Meiji University lecturing on Japanese Diplomacy. He also taught at Kyoto University, Osaka University and Universiti Teknologi Malaysia on Global Environmental Issues.

Ambassador Horie successfully contributed to the establishment of MJIIT (Malaysia-Japan International Institute of Technology) at KL Campus of UTM and he is named today as the 'Father' of MJIIT.

Panel Discussion

Topic: "Innovations Shaping the Future: Bridging Cultures and Industries"

The aim of discussing this topic is to foster a deeper understanding of how innovative trends, technologies, and practices can be leveraged through industry-academia partnerships, cultural exchange programs, and interdisciplinary research and education to enhance collaboration between Japan and Malaysia, ultimately driving forward significant developments in both nations.

We have invited several esteemed individuals from both academia and industry to share their insights on this topic. At the end of the panel discussion session, we will open the floor for a Q&A session, encouraging all participants to engage with our panelists. You are encouraged to learn more about the panelists in advance to help prepare your questions.

Moderator

Professor Sze Yun Set
Project Professor at Research Center for Advanced Science and Technology (RCAST)
The University of Tokyo

Professor Set currently serves as an associate professor at the Research Center for Advanced Science and Technology (RCAST), University of Tokyo. He has held roles including Research Associate at the School of Engineering, University of Tokyo, Senior R&D Engineer at Micron Optics Inc., and CEO & CTO at Alnair Labs Corporation. Since the first demonstrations of the carbon-nanotube (CNT) mode-locked lasers in 2003, over the years, it has bloomed into a new field of Nano-Carbon Photonics, using CNT and other nano-carbon materials for various laser and photonics applications. Prof. Set and his team are interested in developing new industrial applications using these advanced laser pulsed sources. Their recent research interests include novel highly-reliable laser mode-locking technique, integrated optical functional devices using new optical materials, rare-earth-doped fiber amplifiers and their applications and applications of short pulse lasers in multidisciplinary research.

Panelists

Professor Emeritus Omar Farouk
Professor Emeritus
Hiroshima City University

Professor Emeritus Omar Farouk has an illustrious career spanning several decades, marked by significant academic and civic contributions. He graduated with a First Class Honors degree in History from the University of Malaya. He acquired his Ph.D. in Politics and Government from the University of Kent in the United Kingdom. He has held numerous teaching and administrative positions, notably at the University of Malaya and Hiroshima City University, where he was honored with the title of Emeritus Professor. In Malaysia, he has also served as Deputy Vice Chancellor and acting Vice Chancellor at Albukhary International University. His civic engagements include prominent leadership roles in both Malaysia and Japan. Additionally, he has served as an adjunct and visiting professor at several prestigious universities. His accolades encompass numerous research grants and awards, including the Ford Foundation Southeast Asian Fellowship, Asian Foundation, Monbukagakusho Research Grant, Toyota Foundation, and the Japan Foundation. Professor Emeritus Omar Farouk has also made substantial contributions to international election observation, academic editorial roles, and has an extensive list of publications to his name. He has also participated in collective research in several countries.

Professor Sugimoto Ichiro
Professor
Soka University

Professor Ichiro Sugimoto is a Dean in the Faculty of International Liberal Arts at the Soka University, Japan. Ichiro has been a deputy director of the international affairs office and Vice-Dean of the faculty. Ichiro completed his M.A. and PhD at the University of Malaya. His research interests lie in the quantitative economic history of the former British colonies in the Southeast Asian region. Before joining Soka University in 2009, he served on a research project on the construction of historical GDP estimates of Malaya at the Asia-Europe Institute, University of Malaya. In line with this, Ichiro has constructed long-term economic statistics of Singapore and conducted empirical investigations on the economic growth and living standard. His publication includes Economic Growth of Singapore in the Twentieth Century, Historical GDP Estimates and Empirical Investigations (Singapore; World Scientific, 2011), Pentadbiran Kewangan Kolonial Johor (Colonial government finance in the state of Johor) (Kuala Lumpur: UM Press, 2011). He also published journal articles on the economic growth and living standards of Singapore with collaborative researchers in Singapore and Malaysia.

Professor Sha'ri bin Mohd Yusof
Professor
Meiji University

Professor Sha'ri bin Mohd Yusof is a distinguished academic and expert in Quality Engineering, Lean Manufacturing, and Operations Management. With a career spanning over 30 years at Universiti Teknologi Malaysia (UTM), he retired as Professor of Quality Engineering and Management in 2019. Sha'ri holds a Master's degree in Integrated Quality Systems and a PhD from the University of Birmingham, focusing on Total Quality Management (TQM) for small manufacturing businesses. Currently serving as Professor (Contract) at Meiji University's Graduate School of Business Administration since April 2020, Sha'ri continues to enrich the academic community with his expertise. He is a Registered Professional Engineer with the Board of Engineers Malaysia (BEM) and a Senior Member of the American Society for Quality (ASQ), reflecting his commitment to professional standards and excellence. Sha'ri's impact extends beyond academia through his extensive publication record, supervision of over 30 PhD and master's candidates, and contributions to national and international conferences. His dedication to knowledge sharing and training, exemplified by programs like his 2019 initiative for Sudanese engineers on Operations Excellence, underscores his role as a leading figure in his field.

Seng Chye Koek
President
Schüco Japan

Seng Chye Koek joined Schüco in 2021 as the President of Schüco Japan with the aim to provide a different set of value propositions to the Japanese market, focusing on "sustainability" and "digitalization" around products not currently available to owners and architects. Prior to this, he held different directorship and senior managerial positions in LIXIL, leading key initiatives across regions including business development, business turnaround, process improvements, etc. Seng Chye began his career with General Electric (GE) as a management trainee of the Financial Management Program (FMP). He then held different managerial roles in Japan and ASEAN for GE Capital and GE healthcare mainly focusing on corporate finance, digital transformation and business development in both sales and service business models. SengChye graduated from University of Tsukuba, with a B.S.E. in Policy and Planning Science and recognises through his experience in Japan, the Schuco business model has the opportunity to technologically innovate to positively improve the options for investors, developers and architects, whilst creating an ecosystem for aluminum fabricators (sash manufacturers) that improves efficiency, reduces risk and encourages a younger generation to be a part of the industry.

Cher Chen Lung
CEO
Grand Asia Investments

Cher Chen Lung was born and raised in Penang, Malaysia. He is a Chinese Malaysian with business and investment experiences in Japan and Asia and is fluent in six languages. After winning the National Computer Quiz COMQUIZ and graduating from high school, he studied at Sophia University. Upon graduation, he worked for Kyodo News, the largest news agency in Japan, and then for Nomura Research Institute before joining a fund investment company. There, he was involved in business investment and turnaround in Japan, China, Taiwan, and Singapore. In 2015, he teamed up with Hong Kong's leading financial firm and Indonesia's leading energy company to raise a total of 7.8 billion yen to acquire a company listed on the second board of the Tokyo Stock Exchange and become its CEO. He turned the company around for profitability and subsequently sold it. During this time, he also founded the Penang Japanese Saturday School. After helping to launch the largest ICO project in Japan, currently he is building businesses that connect Japan and Asia by utilizing his personal connections and business experiences with FORBES World’s Billionaires. Simultaneously, he founded Grand Asia Investments, Inc., and ran a cross-border investment fund.

Engagement session by MSAJ

Aims of the session:
1. To offer students firsthand knowledge about future prospect opportunities in Malaysia and Japan by exploring the speaker's insight on industry trends and potential paths.

2. To inspire and provide wisdom for students by sharing the speaker's journey, including personal stories, the challenges they faced and overcame, and the insights they gained to guide students in life.

3. To broaden students' global perspectives by featuring a speaker with extensive international experience, particularly in the contexts of Malaysia and Japan

Speaker: DATO' HJ ZULKIFLI BIN.ABDUL MALEK

Dato Hj Zulkifli Abdul Malek was the first batch of students sent to Japan under the Look East Policy sponsored by the Malaysian Government. Upon completion of his studies he was employed by the Yasuda Trust & Banking to work in Tokyo, Singapore, Indonesia and Malaysia.

After the merger in 1998 he was appointed as the Country Advisor of Mizuho Trust & Banking until 2003. Currently he is the Chairman of Pusat Bahasa Teikyo (a subsidiary of Teikyo University Group), Managing Director of DES Niaga Sdn Bhd, Advisor of Japanese School of Kuala Lumpur and the Amway Business Owner.

He is also the director of various Japanese companies including EPSON, KOSE, Daifuku, Ryufu Food Technology, Novalux and KOBELCO Construction Machineries. The founder of Katana Circle Malaysia and the author of "Nippon Kara Manabu", "Kakehashi " and 27 Tertib Mazhab Bisnes Jepun. He speaks about Japanese business ethics at universities and business forums. In 2018 he was conferred the "Order of the Rising Sun " (Kyokujitsu Shojusho) by the Emperor of Japan.

Entrepreneur Guidance Talk by JAGAM

Aim of this session:
Mr. Chee, president and co-founder of Mechano Transformer Corporation, will share the history and research achievements of the company. Participants will gain insights into the challenges and strategies of managing a startup company in Japan.

Speaker: CHEE Sze Keat

President & Co-founder at Mechano Transformer Corporation

• Founded the company with Dr Takeshi Yano and Dr Kazuo Yakuwa at 2002
• Became the president of the company since August 2012
• Email: szekeat@mechano-transformer.com

Professional Experience
• President & Co-founder @ Mechano Transformer Corporation, August 2012 – Present
• Senior researcher & Co-founder @ Mechano Transformer Corporation, May 2002 – July 2012
• Patented 49 patents in Japan and 52 patents outside Japan (Data dated at March 2nd 2023) Founded Mechano Transformer Corporation with Dr Takeshi Yano and Dr Kazuo Yakuwa at 2002

Education
• Associate Degree in Department of Control Engineering @ Matsue National College of Technology, March 2000
• Bachelor's Degree in Systems Innovation, Faculty of Engineering @ The University of Tokyo, March 2003
• Master's Degree in Precision Engineering @ The University of Tokyo, March 2005

Language skills
• Proficient in English, Bahasa Malaysia, Chinese (Mandarin), Chinese (Hokkien), Chinese (Cantonese), Chinese (Hakka), and Japanese.

Sharing session by UNESCO

Associate Professor Dr. Aini Suzana
Head of Technical Committee MOSTI of AI, Governance, Regulation & Ethics
Chair of Science, Engineering, Technology Innovation Policy for Asia Pacific Region Network (STEPAN), UNESCO

AP Dr Aini is a competent policymaker, strategist in ST&I Policy Formulation & Evaluation, International Strategic Alliances as well as in strategic planning and forecasting where she had brought high impact on the nation building and economic growth in Malaysia. She earned her PhD in Science, Technology and Innovation Policy Management from University of Manchester in the United Kingdom, Master degree in Euro-Asia International Business and Bachelor Degree in International Business, University of Miami in Florida, United States of America. She have a proven track record for successful research collaborations both nationally and internationally where I managed to position Malaysia in the international arena by functioning as the Chair for Science, Technology, Engineering & Innovation Policy for Asia & Pacific Region Network (STEPAN), UNESCO, and previously as the Deputy Secretary General of World Organization of Industrial Technological Research (WAITRO), the Focal Point for the Global Research Alliances (GRA), as the Resource Person for Asia Pacific of Technology Transfer (APCTT) under UNESCO. In addition, she has experience in managing mega projects, namely Kuala Lumpur City Centre, Kuala Lumpur International Airport (KLIA) for the District Cooling Project and establishment of various National Research Institutions, National Science Parks, National Research Laboratories as well as Small and Medium National Incubation Centers in Malaysia.

Launch of the UTM-MJIIT Alumni Japan Chapter


#1
Goal
5 MJIIT CORE VALUES
SHINRAI
Trustworthiness
Kepercayaan
Action
CHOUSEN
Challenge
Cabaran
JISSEN
Being practical
Tindakan
Attitude
KENKYO
Modesty
Kesederhanaan
KIZUKAI
Dedication
Bertimbangrasa
GRADUATE EMPLOYABILITY RATE
100%
in 2022 & 2023
INDUSTRIAL LINKAGE COMPANIES
30
International
41
National
MIX OF
MALAYSIAN-JAPANESE -INTERNATIONAL
ACADEMIC STAFF
OPPORTUNITIES FOR MOBILITY PROGRAMS TO JAPAN AND OTHER COUNTRIES
UNDERGRADUATES PROGRAMMES WITH Honours
BACHELOR OF
MECHANICAL PRECISION ENGINEERING
ELECTRONICS SYSTEM ENGINEERING
SCIENCE (INDUSTRIAL MATHEMATICS)
CHEMICAL PROCESS ENGINEERING
SOFTWARE ENGINEERING
POSTGRADUATES PROGRAMMES
BY TAUGHT COURSE
MASTER OF
DISASTER RISK MANAGEMENT
SUSTAINABLE SYSTEMS
TECHNOLOGY AND INNOVATION MANAGEMENT
BY RESEARCH
MASTER OF PHILOSOPHY (MPhil)
DOCTOR OF PHILOSOPHY (PhD)
DOCTOR OF PHILOSOPHY (PhD) IN ENGINEERING EDUCATION
JOINT DEGREE
MASTER OF SUSTAINABILITY AND ENVIRONMENTAL SCIENCES WITH TSUKUBA UNIVERSITY
E-BROCHURE
CENTER
JAPANESE LANGUAGE AND CULTURAL CENTER (JLCC)
DISASTER PREPAREDNESS AND PREVENTION CENTER (DPPC)
MALAYSIA-JAPAN ADVANCED RESEARCH CENTER (MJARC)
LABORATORIES
4
IT LABS
20
RESEARCH GROUP (I-KOHZA)
24
UNDERGRADUATE TEACHING LABS
>8000
EQUIPMENTS
4
INDUSTRY-ACADEMIA COLLABORATIVE LABS (SANGAKU-RENKEI)
5
SERVICE LABS
19
ADVANCED LABS

Shakuhachi performance

Lim Wei Loon — a shakuhachi enthusiast. His journey started with his joining the Chinese Orchestra of Catholic High School, where he was inspired by Mr. Wong Hong Cheong to learn the Sheng and Dizi – the Chinese flute. He also studied Dizi under Mr. Tan Jie.

Upon graduation, he went to Japan, and began learning the Tozan-school shakuhachi from Hikichi Yozan sensei. During his master's degree in Chemistry at The University of Tokyo, he joined the Chikumeisha founded by the father of Yamaguchi Goro (the deceased National Treasure), where he learned the Kinko-school shakuhachi under Matsuyama Ryumei sensei. At the same time, he studied Watazumido shakuhachi with Sogawa Kinya sensei, and began to pick up techniques of all major shakuhachi schools in Japan. Meanwhile, he was constantly invited to teach and perform traditional shakuhachi music in the shakuhachi clubs of various universities in the Kanto region. After working, he is also re-learning Dizi with Ms. Sun Xiaomeng. Despite being an amateur wind instrument enthusiast, he also cares about and hopes to help pass on the traditional Chinese and Japanese musical instruments.

Keep Malaysia At Heart with MyHeart by TalentCorp

Keep Malaysia At Heart with MyHeart BY TALENTCORP

MyHeart platform is an online platform designed for Malaysians abroad to connect, collaborate, stay informed on industry insights and current affairs in Malaysia and much more.

- **Network & Connect**
  Connect and build your international network with Malaysians around the globe
- **Events**
  Discover events near you or post an event you're organising
- **Member Benefits**
  Enjoy exclusive deals from Malaysian businesses
- **Collaboration**
  Collaborate with fellow Malaysians abroad or companies in Malaysia to contribute your expertise to Malaysia's development
- **Work in Malaysia**
  Explore career opportunities in Malaysia with employers looking for talent with international experience
- **Education For Your Children**
  Discover private and international schools in Malaysia for your children and enjoy special incentives offered by our partner schools
- **Returning Expert Programme (REP)**
  Apply to enjoy incentives when you return to pursue your career in Malaysia
  *(*Terms & conditions apply)*

MyHeart Collaboration: TalentCorp and MJVC

TalentCorp, an agency under Malaysia's Ministry of Human Resources (KESUMA), continues its commitment through the **Malaysia at Heart (MyHeart)** initiative, providing a platform for Malaysians abroad to contribute to the nation's development.

During a recent TalentCorp MyHeart '**Salam Dari Malaysia**' outreach event in Tokyo, the Minister of KESUMA, YB Steven Sim Chee Keong, announced that TalentCorp will come on board as a strategic partner for the upcoming **Malaysia-Japan Visionaries Conference 2024 (MJVC2024)**.

In this first MyHeart collaboration for Japan, **TalentCorp will provide a ¥1,000,000.00 grant (equivalent to RM30,000.00)** to ensure the conference's success. Additionally, **TalentCorp will allocate a RM50,000.00 bursary to assist up to 14 Malaysian researchers** to participate in the conference in Tokyo.

MINISTRY OF HUMAN RESOURCES

TalentCorp
GROUP OF COMPANIES

Driving Malaysia's Talent Strategy

Talent Corporation Malaysia Berhad (TalentCorp) is a Ministry of Human Resources (KESUMA) agency that drives Malaysia's talent strategy towards becoming a dynamic talent hub. To support the growth and well-being of all Malaysians, we partner with the public and private sectors on initiatives that attract, nurture, and retain the right expertise needed to meet current and future talent demands. In March 2024, TalentCorp was mandated the strategic think tank for KESUMA, working with departments and agencies under the ministry to address the evolving challenges within the Malaysian workforce.

What We Do

- **Advocate Policies**
- **Create Intervention Programmes**
- **Introduce Best Practices**
- **Drive Strong and Effective Partnerships**

TalentCorp's work is anchored on 3 key thrusts to address talent availability

To **optimise local talent** by focusing on Malaysian graduates, scholars, professionals, and untapped talent such as women, seniors and veterans.

To **attract and support global talents**, which includes Malaysian professionals abroad, expatriate talent in Malaysia, and returnee Malaysians who can contribute to the country's growth.

To **build networks of top talent** to facilitate engagement and collaboration, as we heavily use insights from industry engagement and top-down and bottom-up data to drive our work.

www.talentcorp.com.my

TalentCorpMsia

Salam Dari Malaysia @ London

The 15 June 2024 Salam Dari Malaysia was graced by the Minister of Human Resources (KESUMA), YB Steven Sim Chee Keong and was attended by 300 guests consisting of Malaysian professionals and students including invitees from KESUMA and HRD Corp, High Commissioner of Malaysia to the U.K., British Malaysian Society (BMS), Malaysian Association of Postgraduates and Professionals and Malaysian Business Owners in the UK.

Minister of Human Resources (KESUMA), YB Steven Sim Chee Keong with Malaysians who are currently based in the UK. From left: Jo Ann Lim: Enterprise Client Partner - Reality Labs (EMEA), META, Siu Fun Hui: Founder Pan- European Investor Relations, Mei Sim Lai: Chair, The British Malaysian Society (BMS), Prof. Kanes Rajah: Professor and Executive Director, Centre for Executive and Professional Development, London & Chair - The British Malaysian Society (BMS) Education Group and Kamaruddin Baharin: General Manager, Grand Plaza, Park City hotel and other Felda owned properties in the UK.

Minister of Human Resources (KESUMA), YB Steven Sim Chee Keong with several Malaysian professionals working in the UK and members of the Malaysian Association of Postgraduates & Professionals (MAPP) UK.

Salam Dari Malaysia @ Tokyo

The first Salam Dari Malaysia held in Tokyo on 24 May 2024 was graced by the Minister of Human Resources (KESUMA), YB Steven Sim Chee Keong and was attended by 200 guests including invitees from KESUMA and agencies such as HRD Corp and PERKESO, Embassy of Malaysia (Tokyo, Japan), Japan Graduates Association of Malaysia (JAGAM), Malaysian Students' Association Japan (MSAJ) and Malaysia-Japan Visionaries Conference (MJVC) 2024 Organising Committee.

Parallel Session 1: Poster Presentation

15th September, 2024
13:50 - 14:30
Engineering building no. 3 (東大工学部3号館)
4th floor Room 422 / 423 (４階 422 セミナー室 / 423 会議室)

Due to possible unforeseen changes, please scan the QR code for the most up-to-date presentation schedule and venue details.

Presenters will have to be in front of their posters during this 40-minute session and explain to visitors. Presenters should adjust the length of their explanation sufficiently depending on the number of visitors.

1. Science and Technology		
ID [Poster]	Title	Presenter
PA-001	Two-step water splitting thermochemical cycle based on magnesioferrite foam device for solar hydrogen production	Nur Syazana Suhaila
PA-002	Selecting Suitable Nature-Based Solutions for Flood Resilience in Kota Tinggi, Malaysia using Multi-Criteria Decision Analysis (MCDA) Approach	Dr. Zulfa Hanan Ash'aari
PA-003	Biomass Conversion to Biofuels: Sorbitol Hydrogenolysis via Chromium Oxide Silica Catalyst	Dr. Nur Hazirah binti Rozali Annuar
PA-004	Waste + Water = X	Dr. Pramila Tamunaidu
PA-005	Javanese Medaka, Oryzias Javanicus, an Excellent Model Fish for Microplastics Research in Malaysia and Indonesia	Dr. Hilda Mardiana Pratiwi
PA-006	Enhanced Photodegradation of Benzophenone-3 using Silver Doped Zinc Oxide Photocatalyst	Dr. Saidatul Sophia binti MD Sha'rani
PA-007	HIV-Tocky system in primary CD4+T cells joined with transcriptomic and epigenomic analysis to discover mechanism involves in the establishment of HIV latency	Wajihah binti Sakhor
PA-008	Transformative Wisdom: Bridging Theoretical Insights with Practical Application in Zero Waste Technology for a Sustainable Future	Leo Dyaji

PA-009	Treatment of Oilfield-Produced Water using Mussel-Inspired Upcycled Alginate-Coated Graphene Oxide-Polyethersulfone Membranes	Dr. Nur Hashimah binti Alias
PA-010	Human Posture Monitoring Based on AI System	Dr. Muhammad Adri Haqimi
PA-011	Smart Autonomous Mobile Water Sprinkler using IOT Approach	Dr. Nazwa Nazhimuddin
PA-012	Crash Avoidance System using Microsleep Detector	Dr. Wan Afif Amjad Wan Sukhairi
PA-013	Fine-Tuning the YamNet Audio Classification Model	Dr. Casper Marc Sluitman
PA-014	Development of an Upper Limb Telerehabilitation System for Stroke Patients: A Study on VR Environment	Dr. Anusha Ashok
PA-015	Servo based Real-time Object Tracking System	Dr. Chow Chan Hoe
PA-016	Nuclear Structures in Neutron-rich Nuclei 141Xe and 143Xe Investigated by β-γ Spectroscopy	Nurhafiza binti Mohamad Nor

2. Social Sciences and Humanities		
ID [Poster]	Title	Presenter
PB-001	From Knowledge to Wisdom: Applying Cross-Cultural Psychological Capital and Service-Oriented Organizational Citizenship Behavior to Reduce Turnover Intention	Dr. Daria Gom
PB-002	The Moderating Effect of Environmental Practices on the Relationship between Service Quality and Customer Experience in a Hotel Industry	Dr. Raini @ Anne binti Laipan
PB-003	Knowledge Transfer Program (KTP) and The Community: Enhancing Communication and Personal Capacity	Mary Monica Jiony
PB-004	Understanding UUM Students' Perception of Public Bus Usage Using the Theory of Planned Behaviour	Yap Kah Yee
PB-005	Factors Influencing Road Accidents Among Young Drivers on the Universiti Utara Malaysia Campus	Rangganayagi Dewarajoo

PB-006	Storytelling Origami-based: Enhancing Creativity and Interpersonal Skills in the 'Jati Diri' Course	Maisarah Kamal
PB-007	Wisdom Applied: The Moderating Role of Workplace Envy in Succession Planning and Leadership	Dr. Muhammad Afnan Mahusain
PB-008	Exploring the Role of Mother Tongue Education in Shaping Year Five Pupils' Mental Models of the Environment and Their Pro-Environmental Behaviours	Kavitha Maslamany
PB-009	Exploring Preferable Climate Futures for Tourism Development: A Local Host Perspective from Japan and Malaysia	Dr. Husna Zainal Abidin
PB-010	Understanding Gender Stereotypes in Shonen and Shojo Anime: Views of Malaysian Japanese Language Students	Sharifah Nurul Shahirah
PB-011	Perspectives of Malaysian Mental Health Professionals on the usage of Non-erotic Touch in Therapy	Ng Suet Choon
PB-012	AI at AR the Crossroads: Unveiling the Role of Artificial Intelligence in Fostering Sustainable Consumption Practices	Dr. Muddasar Ghani Khwaja

3. Law, Economy and Business		
ID [Poster]	Title	Presenter
PC-001	Management Accounting Practices and Operational Performance in Malaysian Hotel: The Antecedent Factors	Dr. Salumah binti Nain
PC-002	Exploring Cross-Cultural Consumer Behavior and Marketing Strategies between Malaysia and Japan	Assoc. Prof. Dr. Thoo Ai Chin
PC-003	Bridging the Fast Fashion Brands in China via Spillover Effect and Ethnocentrism as Co-Branding Moderators	Assoc. Prof. Dr. Zuraidah Sulaiman

4. Engineering, manufacturing and construction		
ID [Poster]	Title	Presenter
PD-001	Impact of Surface Roughness on Friction Factors in Galvanized Steel (GS) and Stainless Steel (SS) Circular Tubes	Pajvenpural A/L Muthusamy
PD-002	Enhanced Performance in Prosthetic Running Blades through Lattice Core Sandwich Design under Static Compression	Susharrman
PD-003	3D-Printed Prosthetic Running Blades with Innovative Lattice Core Sandwich Structure Design	Kreeshanthini Gobalan
PD-004	Soft Skills Competencies of Quantity Surveying Graduates in Sarawak: Employers' Views and Expectations	Dr. Sing-Sing Wong
PD-005	Advancing Drone Technology through Machine Learning and Differential Model-Based Control	Assoc. Prof. Dr. Zool Hilmi Ismail

5. Health and Medicine		
ID [Poster]	Title	Presenter
PE-001	Tracking heatstroke condition：A proteomics multibiomarker approach for evaluating potential post-heatstroke complications	Jiayi Jin
PE-002	A Review of Knee Supports as a Potential Intervention for Fatigue and Knee Instability in Industrial Prolonged Standing Jobs	Elisha Claret A/P Wilson Dass
PE-003	Exploring the Prevalence, Perception and Experience of Online Resources to Self-Diagnosis among Adults in the Klang Valley, Malaysia	Josephine Ong Chin Wey
PE-004	Isolation, Characterization, and Functionalization of Cellulose Nanocrystals Derived from Oil Palm Frond Fiber Incorporating Erythromycin and Tetracycline Hydrochloride	Dr. Looi Chung Yeng
PE-005	Evaluating the Efficacy of Multimodal Large Language Models in Diagnosing and Staging Diabetic Retinopathy: An External Validation Study	Dr. Liew Chuin Hen

6. Cross-disciplinary and other emerging areas		
ID [Poster]	Title	Presenter
PF-001	Applying Knowledge through Managerial Coaching Skills: An Empirical Study of Employee Commitment	Ishak bin Haji Abd Rahman
PF-002	Promoting Cross-Culture Engineering Education via Problem-Based Learning: UNIMAS-SIT experience	Dr. Noor Hisyam Noor Mohamed
PF-003	Construction of Malay-Japanese Cross Language Information Retrieval (CLIR) Dictionary	Fazrina binti Said
PF-004	The Impact of Cocoa Pod Husk Compost on Soil Fertility, Rice Yield, and Starch Content in Rice Grains among Small-Scale Farmers in Malaysia: A Systematic Review	Dr. Muhammad Aniq bin Halim
PF-005	Tech-Enhanced Stress Relief: A Flipped Learning Approach for Foundation Students	Dr. Aisyah Hartini binti Jahidin
PF-007	Keiretsu Revolution: Japanese Strategies to Supercharge Malaysian Businesses	Dr. Mughaneswari Sahadevan
PF-008	Integrating Japanese-Style Engineering Education with Malaysian Cultural Distinctiveness: The MJIIT Experience at Universiti Teknologi Malaysia	Assoc. Prof. Dr. Nurulakmar Abu Husain
PF-009	The Influence of Mobile Augmented Reality (MAR) Features on Consumers' Immersion, Choice Confidence, and Purchase Intention of Cosmetics	Assoc. Prof. Dr. Zuraidah Sulaiman
TF-001	Towards Circular Prosperity: A Blueprint for Sustainable Transformation in the Malaysian ICT Industry	Assoc. Prof. Dr. Mohamad Ghozali bin Hassan

Parallel Session 2 and 3: Oral Presentation

15th September, 2024
Parallel Session 2 14:30 - 16:10
Parallel Session 3 16:40 - 18:20
Engineering building no. 3 (東大工学部3号館)
2nd / 3rd / 4th floor

For the specific venue of each presenter, please refer to the information provided below. Due to possible unforeseen changes, please scan the QR code for the most up-to-date presentation schedule and venue details.

Each presenter will deliver a 15-minute presentation on their research, followed by a 5-minute Q&A session in their allocated time slot.

1. Science and Technology				
ID [Oral]	Title	Presenter	Venue	Time
SA-001	The characterisation and potential of fermented banana peel (Musa acuminata) and its bacterial isolates in promoting oyster mushroom (Pleurotus ostreatus) growth	Nurul Solehah Mohd Zaini	317 演習室	14:30 - 14:50
SA-002	Integration of Local Large Language Models for Enhanced Indoor Air Quality Monitoring	Dr. Thinagaran Perumal		14:50 - 15:10
SA-003	Synthesis of Spent Tea for Laccase Immobilization	Dr. Mohd Syahlan Mohd Syukri		15:10 - 15:30
SA-004	Fish Vaccines against Vibriosis in Malaysia: Efficacy and Challenges	Assoc. Prof. Dr. Ina Salwany Md Yasin		15:30 - 15:50

SA-005	Bimetallic Palladium-Rhodium Nanoparticles on Molybdenum Disulfide Nanosheets as Efficient Electrocatalysts for Hydrogen Evolution Reaction	Dr. Mehran Sookhakian		15:50 - 16:10
SA-006	An Insight into Bioflocculant Treatment for Metal-Contaminated Water: Evaluating Fish Behavioural and Histological Changes	Dr. Zufarzaana Zulkeflee	33 講義室	14:30 - 14:50
SA-007	Modulation of PPARγ, C/EBP, and UCP1 Gene Expression by Gac Aril Carotenoid-Rich Extract in High-Fat Diet-Fed Sprague Dawley Rats	Dr. Mohd Nazri bin Abdul Rahman		14:50 - 15:10
SA-008	The effects of different calcination temperatures on developed mycogenic zinc oxide nanoparticles with antibacterial activity against freshwater fish pathogen Streptococcus agalactiae and Aeromonas hydrophila	Muhammad Salahudin Bin Kheirel Anuar		15:10 - 15:30
SA-009	Improvement Cell Viability of Lactobacillus Paracasei Cultivation as a Potential Probiotic Starter Culture through Optimization Growth Condition by Response Surface Methodology	Dr. Siti Nur Hazwani Oslan		15:30 - 15:50
SA-010	Comparative Study on the Toxicity and Behavioural Impact of Ammonium Hydroxide on Juvenile Barramundi and Juvenile Orange Mud Crab	Assoc. Prof. Dr. Ferdaus Mohamat Yusuff		15:50 - 16:10
SA-011	Beyond Filter Bubbles: Fostering Serendipity in Content-Based Recommender Systems	Prof. Shahrul Azman Mohd Noah	331 会議室	14:30 - 14:50
SA-012	Fabrication and Characterisation of Starch-Based Bioplastic from Expired Bread: Enhancing Sustainability and Performance	Dr. Mohamad Fairus bin Rabuni		14:50 - 15:10
SA-013	Development of Reactive Toughening of PVA/Chitosan Composite Beads for Water treatment	Dr. Ching Yern Chee		15:10 - 15:30

SA-014	Collaborate to Innovate: The Future of Biosensor Technology Ecosystem	Dr. Iffah Izzati Zakaria		15:30 - 15:50
SA-015	Supporting early years dyslexic children with mobile assistive technology: Exploring the implementation in Malaysia and Japan	Dr. Mariam Mohamad		15:50 - 16:10
SA-016	Mechanical Properties of Natural Rubber and Waste Tire Rubber Blend Based Magnetorheological Elastomer: Insights into Crosslink Density and Performance	Aizatul Nabilla Zakwan	317 演習室	16:40 - 17:00
SA-017	Combined Effect of Zinc Oxide and Chitosan Nanoparticles: Antibacterial, Molecular Docking and Wound Healing Analyses	Nur Syafiqah Farhanah binti Dzulkharnien		17:00 - 17:20
SA-018	Trichoderma yunnanense as a potential biocontrol agent of Fusarium wilt in banana	Dr. Nurul Shamsinah Mohd Suhaimi		17:20 - 17:40
SA-019	Harnessing AI for Enhancing Educational Outcomes in Students with Mental Disability	Dr. Abdul Nasir bin Abd Ghafar		17:40 - 18:00
SA-020	Pullulan Mediated Zinc Oxide Nanocatalysts for Efficient Photodegradation of Anionic and Cationic Dyes	Dr. Eleen Dayana binti Mohamed Isa		18:00 - 18:20
SA-021	Towards Efficient Healthcare Logistics: A Requirement Analysis of Medical Delivery Drone	Dr. Abdulwahab Funsho Atanda		16:40 - 17:00
SA-022	FAR1 and FAR2 Regulate the Expression of Genes Associated with Lipid Metabolism in the Rice Blast Fungus Magnaporthe oryzae	Assoc. Prof. Dr. Mohd Termizi Yusof		17:00 - 17:20

SA-023	The influence of social media on social interaction patterns among students in Higher Educational Institutions (HEIs) in Alamesra	Charisthy All Modumis	33 講義室	17:20 - 17:40
SA-024	Superhydrophobic Transparent Coating with Self-Cleaning Properties for Next-Generation Smart Photovoltaic Panels	Khishn Kumar Kandiah		17:40 - 18:00
SA-025	Obfuscated Malware Detection Using Memory Based Techniques	Nor Zakiah binti Gorment		18:00 - 18:20
SA-026	Colour-Based Ripeness Classification of Oil Palm Fresh Fruit Bunches Using Convolution Neural Network and Data Augmentation	Dr. Juhaida binti Abu Bakar	331 会議室	16:40 - 17:00
SA-027	Microbubble detection in transformer oil by means of compressive digital holography	Dr. Syukran Hakim bin Norazman		17:00 - 17:20
SA-028	Polyhydroxyalkanoates (PHA): A Biopolymer for a Greener and Sustainable Future	Dr. Manoj Lakshmanan		17:20 - 17:40
SA-029	Smart Cities for Technological and Social Innovation	Dr. Nurul Hidayah binti Shabdin		17:40 - 18:00
SA-030	Unveiling Probiotic Potential: Lactic Acid Bacteria Isolated from Malaysian Fermented and Dairy Food Products	Dr. Shirley Gee Hoon Tang		18:00 - 18:20

2. Social Sciences and Humanities				
ID [Oral]	Title	Presenter	Venue	Time
SB-001	Empowering The Competencies of Primary School Administrative Assistant Teachers (AAT) in Malaysia	Dr. Norliza binti Samad	309 演習室	14:30 - 14:50
SB-002	Malaysia-Japan Relations in Dominant Party Politics: Evaluating the Dynamics Between The United Malays National Organisation (UMNO) And The Liberal Democratic Party (LDP)	Aaron Denison Deivasagayam		14:50 - 15:10
SB-003	Evaluating the Effectiveness and Impact of the Enhanced High-Performing Leader Programmes (EHPL) on Leadership Development within the Sarawak Civil Service, Malaysia	Dr. Sopian Bujang		15:10 - 15:30
SB-004	Study Abroad and Re-entry Experience: A Malaysian Perspective	Prof. Magdalene Ang Chooi Hwa		15:30 - 15:50
SB-005	From Shibuya to Kuantan: Jujutsu Kaisen as a Lens into Cool Japan's Footprint in Malaysia	Hannah Kuah Jie Hui		15:50 - 16:10
SB-006	The Effects of Socioeconomic Status on the Neural Signals of Error Monitoring and Depression	Dr. Hiran Shanake Perera Weerasinghe Arachchige	432 演習室	14:30 - 14:50
SB-007	Exploring intercultural competency in tourism curriculum development: The impact of Malaysian students in Japan	Yurika Shibamoto		14:50 - 15:10
SB-008	The Role of Japanese Language Teachers in Bridging Malaysia and Japan through Culture and Education	Dr. Azalia Zaharuddin		15:10 - 15:30

SB-009	Mindset Components of Food-Based Social Entrepreneurs: Towards Sustainable Local Food	Khairun Najihah Bt Sabri		15:30 - 15:50
SB-010	The Application of 21st Century Technologies To Increase Students' Motivation, Understanding, and Problem-Solving Skills in Learning Mathematics	Amirul Mohamad Khairi bin Mannan		15:50 - 16:10
SB-011	Influence of Viral Food Marketing Strategies, Behavioural Intention, and Purchase Behaviour of Japanese Foods in Malaysia	Dr. Khalilah binti Abd Hafiz	415 会議室	14:30 - 14:50
SB-012	Japan as a Muslim-Friendly Destination for Malaysian Travelers: Preliminary Findings	Dr. Nur Hafeeza binti Ahmad Pazil		14:50 - 15:10
SB-013	Systematic Literature Review: Using Storytelling to Support Character Development in Children with Trauma	Nurin Wahida Amalin Binti Aslizam		15:10 - 15:30
SB-014	Implementation of Forest STEM Module Based on Moral Values in Indigenous Education	Dr. Nor Hasniza Binti Ibrahim		15:30 - 15:50
SB-015	An analysis of climate change impact and adaptation strategies among paddy farmers in Kedah, Malaysia	Dr. Annuar Aswan bin Mohd Noor		15:50 - 16:10
SB-016	Knowledge Production On Citizen Science Contributions to Sustainable Development Goals In Japan And Malaysia: A Comparative Study	Dr. Mohd Faizal Hamzah		14:30 - 14:50
SB-017	Scripting Patriotism: A Corpus-assisted Discourse Analysis on Malaysian Chinese Primary School History Textbooks	Ho Pui Yue		14:50 - 15:10

SB-018	Perceptions of Corruption: Effects on Self, Family, and Society among Young Adults	Yee Vonne Lim	424 会議室	15:10 - 15:30
SB-019	Is Corruption Only About Traffic Police and a Form of Shortcut? An interview Study with Young Adults.	Hongbin Law		15:30 - 15:50
SB-020	Experiences of Children with Dyslexia at Home and School Before Admission to Gazetted Schools	Dr. Athirah Azhar		15:50 - 16:10
SB-021	Exploring the Role of Mother Tongue Education in Shaping Year Five Pupils' Mental Models of the Environment and Their Pro-Environmental Behaviours	Dr. Selvajothi Ramalingam	309 演習室	16:40 - 17:00
SB-022	Innovative Strategies for Enhancing Human Capital Development through Social Enterprises in Malaysia and Japan: Achieving the 3 Zeroes and Sustainable Development Goals (SDGs)	Assoc. Prof. Dr. Norizan Azizan		17:00 - 17:20
SB-023	Neurodiversity and Inclusion in Japan and Malaysia	Dr. Jennifer Yphantides		17:20 - 17:40
SB-024	The Wisdom of Arabian Travels to Malay Peninsula and Kanto Based on of 9th Century AD al-Masālik wa al-Mamālik	Dr. Thuraya Ahmad		17:40 - 18:00
SB-025	Perceptions and Social Representations of Adult Videos among Young Adults in Japan: Benefits, Harms, and Gender Differences	Rere Matsumoto		18:00 - 18:20
SB-027	The Impact Of Good Facilities On High School Students	Nur Izzah Binti Harifin		17:00 - 17:20

SB-028	Exploring the Influence of Social Media on Learning in Higher Education: A Study in Kota Kinabalu, Sabah	Fatin Asyiera Nabila binti Shamshol Bhari	432 演習室	17:20 - 17:40
SB-029	The impact of student's economy on their academic experience in Private Higher Educational Institutions (PHEIs) in Alamesra	Elviana Danniel		17:40 - 18:00
SB-030	Effects of Urban Densification on Quality of the Built Environment of Kano Metropolis in Nigeria	Prof. Abdul-Aziz Raji		18:00 - 18:20
SB-031	Utilization of Artificial Intelligence (AI)-tools in Mathematics Among Higher Learning Students in Malaysia	Mohammad Aniq bin Amdan	415 会議室	16:40 - 17:00
SB-032	The Effect of Using AI-Tools in Learning For Education	Izzah Athirah binti Zainudin		17:00 - 17:20
SB-033	Unveiling the Power of Mentorship: Japanese Students' Academic Journey in Klang Valley, Malaysia	Dr. Thanam Subramaniam		17:20 - 17:40
SB-034	Branding Cruise Tourism Destination to Enhance Destination Loyalty in Penang, Malaysia: A Customer-Based Brand Equity Pyramid Perspective	Md. Tariqul Islam		17:40 - 18:00
SB-035	Perspectives of Malaysian Mental Health Professionals on the usage of Non-erotic Touch in Therapy	Alicia Wong Shu Pei		16:40 - 17:00
SB-036	AI-Enhanced Science Learning: Reshaping the Educational Scenario of Malaysia	Mohamad Aidil Hazidi bin Kasdiah		17:00 - 17:20

SB-037	The Impact of ICT In Teaching and Learning to UNITAR Sabah Students	Nurul Zakiah Binti Herman	424 会議室	17:20 - 17:40
SB-038	Adaptation of Japanese Bento Concept for Malaysian Indian Food Among Gen Z in Malaysia	Dr. G. Manickam Govindaraju		17:40 - 18:00
SB-039	The Impact of Technological Approach in Enhancing the Effectiveness of Mathematics' Teaching and Learning	Avilla binti Palajuman	413 会議室	16:40 - 17:00
SB-040	Decoding Doraemon: Semiotics and Cultural Dissemination of Japanese Culture in Malaysia	Dr. Sillalee S. Kandasamy		17:00 - 17:20
SB-041	Digital Innovation in Education: The Role of ICT in Enhancing Teaching Quality By Teachers	Siti Norashikin binti Rahman		17:20 - 17:40
SB-042	Nurturing Academic Writing Skills for English as a Foreign Language Learners at a Writing Center in Japan	Aliyyah Nuha Faiqah binti Azman Firdaus		17:40 - 18:00

3. Law, Economy and Business				
ID [Oral]	Title	Presenter	Venue	Time
SC-001	The Technical Efficiency of Foreign Labour Force in Malaysia: A Kmenta Elasticity-augmented Stochastic Frontier Analysis	Yee Hang Chong	413 会議室	14:30 - 14:50
SC-002	The Impact of Precarious Employment on Work Engagement And Voice Behavior of Contract Based Employees	Dr. Roshayati Abdul Hamid		14:50 - 15:10
SC-003	Empowering Sustainable Practices: The Role of Malaysia Green Electricity Tariff Program in Decarbonisation and Reducing GHG Emissions	Mohd Amirulazry bin Mohd Amin		15:10 - 15:30
SC-004	The Critical Digital Transformation of Micro, Small, and Medium Enterprises (MSMEs) in Labuan, Malaysia	Assoc. Prof. Dr. Geoffrey Harvey Tanakinjal		15:30 - 15:50
SC-005	Understanding the Value of Copyrighted Material in AI Systems from a Malaysian Perspective	Umi Hashieda Hussain	34 講義室	14:30 - 14:50
SC-006	Government Director's Role Identify and Social Group Identification: The Effects on Corporate Governance in Malaysia State-Owned Enterprise	Assoc. Prof. Dr. Noradiva Hamzah		14:50 - 15:10
SC-007	Entrepreneurial Orientation and Managerial Skills in Sabah and Sarawak : From a Co-operative Perspective	Dr. Bonaventure Boniface		15:10 - 15:30
SC-008	Economic Empowerment of Coastal Women: A Case Study of Pattingalloang Fisherman's Village, Makassar, Indonesia	Athira Rinandha Eragradini GP.		15:30 - 15:50

SC-009	Sustainable Finance: Evidence from CSR Action for Economic Village Centre (Balai Ekonomi Desa) – Tuksongo in Indonesia	Ayudyah Dian Imasari	34 講義室	16:40 - 17:00
SC-010	Female Muslim Tourists' Preference During Educational Tourism Visits to Non-Muslim Destinations	Dr. Aisyah Tri Astari		17:00 - 17:20
SC-011	Private Final Consumption Expenditure Economic Growth of Penang, 1880-1939	Prashant Gupta		17:20 - 17:40
SC-012	Explaining the Demand for Credit by Micro, Small, and Medium Enterprises in Indonesia (South Sulawesi Province Case)	St. Farhana Putri Mountu Marsuki		17:40 - 18:00

4. Engineering, Manufacturing and Construction				
ID [Oral]	Title	Presenter	Venue	Time
SD-001	Comparative Analysis and Optimization of Energy Calculation for Green Building Certification	Husam bin Abdul Fatah Haron	32 講義室	14:30 - 14:50
SD-002	Modified Five-Level LLC Resonant DC-DC Converter	Dr. Mohamed Salem		14:50 - 15:10
SD-003	Analysis of Grasping Force of Irregular Shapes Object for Low-Cost 3D Printed Prosthetics Robotic Arm	Devin Babu A/L Nadarajah		15:10 - 15:30
SD-004	Mathematical Modeling and Performance Analysis of Electromagnetic Suspension (EMS) Systems Using Taylor Series Expansion	Dr. Ahmad Zaki Mohamad Amin		15:30 - 15:50

SD-005	Prediction of Palm Oil Mill Effluent Bioremediation by Immobilised Black Fungus using Artificial Neural Network	Ir. Dr. Jegalakshimi Jewaratnam		15:50 - 16:10
SD-006	Cooling System for HV Arc Flash Suit Wearer	Prof. Prashobh Kumar Karunakaran	32 講義室	16:40 - 17:00
SD-007	Industry-Infused Program: Bridging the Gap between Academia and Industry for Student and Academic Curriculum Enrichment	Dr. Rosmiwati Mohd Mokhtar		17:00 - 17:20
SD-008	SafeAir: Air Pollution Detection and Monitoring System for Industrial Area	Dr. Noorazliza Sulaiman		17:20 - 17:40
SD-009	Effect of Green Building Design on Fire Safety	Muhammad Badrul Amin bin Mahosin		17:40 - 18:00
SD-010	Effect of titanium implant plate fixation with different stiffness on defect healing of rabbit femur bone	Dr. Norain binti Abdullah		18:00 - 18:20

5. Health and Medicine				
ID [Oral]	Title	Presenter	Venue	Time
SE-001	Halal Integrity in Biotech-Driven Pharmaceuticals: Advancements and Quality Standards	Dr. Sylvia Sandanasamy Sandanamsamy		14:30 - 14:50
SE-002	Multidomain Intervention for Risk Reduction Intervention for Dementia among Older Adults in Asia: Can We Do it?	Prof. Suzana Shahar		14:50 - 15:10

SE-003	Psychometric Properties of the Genitourinary Syndrome of Menopause Symptoms and Treatment Acceptability Questionnaire (GSM-SVTAQ)	Prof. Hasniza Zaman Huri	35 講義室	15:10 - 15:30
SE-004	Molecular Prevalence of Zoonotic Malaria in Indonesian Kalimantan Provinces Bordering Malaysian Borneo	Dr. Diana Natalia		15:30 - 15:50
SE-005	Sea Urchin Gonads: A Hidden Treasure Against Obesity? A Literature Review on Anti-Inflamatory Potential and Benefits	MD Arlina Wiyata Gama	441 演習室	14:30 - 14:50
SE-006	Characterisation of Pteropine Orthoreovirus Oncolytic Activity Against Leukaemia Cells and Cancer Stem Cells	Ong Ghee Khang		14:50 - 15:10
SE-007	Impact of Glycation on Physicochemical Properties and Digestibility of Whey Protein Isolate under Simulated Infant Gastric Conditions	Dr. Norliza Julmohammad		15:10 - 15:30
SE-008	Nutrient Content, Physical Properties, and Sensory Evaluation of Crackers Incorporated with Red Seaweed Gracilaria changii	Dr. Patricia Matanjun		15:30 - 15:50
SE-009	Health Benefits of Sockeye Salmon Consumption in Young Japanese Women	Muhammad Umair bin Mohamad Khairul Anwar	35 講義室	16:40 - 17:00
SE-010	Podoplanin-expressing Inflammatory macrophages in Chlamydia infection	Dr. Won Fen Wong		17:00 - 17:20
SE-011	Prevalence of Possible Depression and Anxiety Illness Among Pre - University Students in Malaysia; A Pilot Study	Dr. Luqman Hafidz bin Mohamed		17:20 - 17:40

6. Cross-disciplinary and other emerging areas				
ID [Oral]	Title	Presenter	Venue	Time
TF-001	Towards Circular Prosperity: A Blueprint for Sustainable Transformation in the Malaysian ICT Industry	Assoc. Prof. Dr. Mohamad Ghozali Bin Hassan	411 演習室	14:30 - 14:50
SF-001	Integrating Society 5.0 and AI Technologies in Management of Technology Education	Dr. Zulhasni bin Abdul Rahim		14:50 - 15:10
SF-002	A Social Media Analysis of Malaysian Students' Aspirations for Higher Education in Japan	Shazlinda binti MD Yusof		15:10 - 15:30
SF-003	Choreography and Space in Traditional Arts: A Pragmatist Exploration Using Motion Capture Technology	Dr. Syafiq Faliq bin Alfan		15:30 - 16:10
SF-004	Evaluating the Feasibility of Eusideroxylon Zwageri (Sarawak Belian Wood) for High-Performance Bicycle Frame Construction	Dr. Muhammad Firdaus Abong Abdullah	411 演習室	16:40 - 17:00
SF-005	Revealing the Secret Behind Chicken Comb: Detecting Chicken Disease Infection through its Optical Chromaticity	Prof. Pin Jern Ker		17:00 - 17:20
SF-006	Innovative Approaches in Disaster Risk Reduction: The Impact of Safety Professionals	Mohd Zainoor Annuar bin Mohd Zain		17:20 - 17:40
SF-007	The Nexus of Electricity Consumption and GDP Growth in Malaysia	Muhammad Fareez bin Jamali		17:40 - 18:00

SF-008	Integrating Malay Motifs into Japanese Woodblock Print Techniques: A Study on 'Itik Pulang Petang' using 3D Printing Technology	Ts. Muhammad Sukor bin Romat	441 演習室	16:40 - 17:00
SF-009	AI-Driven Nanobiotechnology Strategies for Enhancing Cell Viability and Functionality in 3D Bio-Printed Constructs for Ischemic Heart Disease Treatment	Prof. David Asirvatham		17:00 - 17:20
SF-010	Water Segmentation for Flood Detection using Deep Learning on Remote Sensing Images	Mohd Shahar Abdullah		17:20 - 17:40
SF-011	A Proposed Comparative Study on Intercultural Communication Competency of Foreign Healthcare Workers in Malaysia and Japan	Dr. Ahmad Akira		17:40 - 18:00

Sponsors Acknowledgement

TalentCorp

Pertubuhan Kebangsaan Pelajar Malaysia di Jepun (MSAJ)

Center for Malaysian Studies, SOKA University

Mechano Transformer Corporation

Malaysia-Japan International Institute of Technology-Universiti Teknologi Malaysia (MJIIT-UTM)

Individual sponsors

Mr. Cher Chen Lung

Dr. Mohamed Salem Mohamed Othman

Nancy Lim Lean Sim

Michael Poh Choo Chuan

Prof. Shari Mohd Yusof

Shimojo Takehiko

Shimojo Masahiko

Nurtasbiyah Binti Yusof

Thank you!
Your sponsorship of this event has further strengthened the existing Malaysia-Japan relations, opening up more opportunities for future collaborations and engagements.

Notes

Notes

Appendix

Accepted Papers Abstract

Paper Submission only

Track 1: Science and Technology

1. **NA-001**

   Cytochrome P450 1A (cyp1a) gene-knockout Javanese medaka Oryzias javanicus as future model organism for pollution studies
   Suhaila Rusni, Hilda Mardiana Pratiwi and Koji Inoue

   Southeast Asia is a region with multiple countries and is popular for its richness in biodiversity as well as rapid development and economic growth. As the geographical area is mainly composed of sea areas and small islands, pollution in the ocean has been a major issue threatens the living ecosystem and environment. Numerous efforts have been taken to monitor the pollution and inspect its source and effects on living organisms. Several potential bioindicators are suggested for pollution studies such as mussels and small fishes. Among them, Javanese medaka, *Oryzias javanicus* has become a major model vertebrate for pollution studies in this area. However, the study of the pollutant's effects on molecular levels such as genetics and genomics is still scarce, although their whole genome sequence has been made available. This study proposes a monitoring system for persistent organic pollutants (POPs) using Javanese medaka, *O. javanicus*. It demonstrates the successful application of a genome editing technique through the knockout of cytochrome P450 family 1A (*cyp1a*), a gene that controls organic pollutant metabolism. Subsequently, transcriptomic analysis on both the wild-type (WT) and *cyp1a*-knockout (KO) strains was performed. The aims are (1) to reveal the response of *O. javanicus* on polyaromatic hydrocarbons (PAHs), (2) to determine the *cyp1a* gene function in pollutant metabolism, and (3) to identify the relationship of the *cyp1a* gene with other metabolism pathways in the body. Firstly, an acute toxicity test on the WT fish was performed, and an increment in mortality rate and *cyp1a* mRNA upregulation was detected in a concentration-dependent manner. Subsequently, a knockout attempt on the *cyp1a* gene performed had generated a strain with a four-base deletion on the DNA sequence. Pollutant exposure on the WT and KO strains revealed the existence of different toxicity modes in which *cyp1a* is involved. Finally, RNA sequencing and transcriptomic analysis enable the comparison of the gene expression profiles of both strains. In conclusion, this study proposes the comparative use of WT and KO *O. javanicus* to practically estimate the ecological risk of POPs and detect their effect on cell metabolism related to the *cyp1a* gene.

   Keywords: *CRISPR/Cas 9, genetics, genome editing, marine pollution, Southeast Asia*

Track 2: Social Sciences and Humanities

1. **NB-001**

   Exploring Instagram Advocacy for Citizenship Rights of Children Born to Malaysian Mothers Overseas
   Aleza Nadia Othman and Shazleen Mohamed

   Social media has become a crucial tool for advocacy efforts as it has the power to connect individuals and communities globally and amplifying voices for crucial issues. On 9th September

2021, the High Court in Kuala Lumpur ruled that children born overseas to Malaysian mothers who are married to foreigners are automatically conferred Malaysian citizenship. However, on 14 September 2021, the Malaysian government filed an appeal against the decision. This study employs non-probability sampling and qualitative content analysis, to analysed postings on the Instagram account of 'Family Frontiers', a women's rights non-governmental organisation (NGO) that advocates equal citizenship rights for Malaysian women and their overseas-born children. This study will focus on 'Family Frontiers' account from 9th September 2021 to 16th September 2022 concentrating on four areas which are: 1) the Personal experiences of the Malaysian mothers affected 2) Politicians' support towards Family Frontiers 3) #TarikBalikRayuan social media campaign 4) Information of the citizenship case

Keywords: *Family Frontiers, citizenship of children, Malaysian mothers, equal citizenship, social media*

2. NB-002

The Impact of ICT in Teaching and Learning: A Case Study of UNITAR Sabah Students

Mohammad Iskandar Bin Amdan

This study investigates the influence of **Information and Communication Technology (ICT)** on teaching and learning processes among students at **UNITAR International University Sabah Campus**. With the rapid advancement of digital tools, educational institutions are increasingly integrating ICT to enhance academic experiences. This research aims to explore how these technological advancements have affected students' engagement, learning outcomes, and overall satisfaction.

Through a mixed-method approach, comprising surveys and in-depth interviews, data were collected from a diverse sample of students enrolled in various programs at UNITAR Sabah. The findings reveal that ICT integration significantly improves access to resources, facilitates interactive learning, and supports personalized education. However, challenges such as digital divide and technological proficiency were also identified.

The study underscores the necessity for ongoing ICT training for each student and educators to maximise the benefits of digital tools in education. Additionally, it highlights the ability of ICT to convert traditional teaching techniques, fostering a greater inclusive and effective mastering environment. the implications of this studies are vital for policymakers and educational practitioners aiming to beautify the quality of education through generation.

Keywords: *ICT, teaching and learning, higher education, UNITAR Sabah, student engagement, digital tools, educational technology.*

3. NB-003

Evaluating Parental Preferences for Preschool Education in Malaysia: A Case Study of Kindergartens in Pulau Pinang

Radhega Ramasamy

This study aims to investigate the factors that affect parents' choice of preschools in Malaysia, with a focus on kindergartens in Pulau Pinang. To achieve this, a quantitative research design was adopted. A questionnaire was uploaded on the Internet and distributed to the target population, consisting of parents who send their children to preschools. A total of 100 completed questionnaires were collected, processed, and analyzed statistically. The findings revealed that the

main factors influencing parents' decisions to choose a preschool were curriculum factors, academic factors, school-parent relationships, and school facilities. Specifically, parents highly value the quality of the curriculum offered by the preschool, the positive academic environment, the strength of the relationship between the school and parents, and the quality of the school's facilities. These factors were consistently cited as critical in making their preschool selection. The analysis indicates that Malaysian parents place significant importance on various aspects of preschool education. High-quality curricula and robust academic programs are seen as essential for the early development of their children. Additionally, strong school-parent relationships are crucial for ensuring that parents feel engaged and informed about their child's education and development. Modern and well-maintained facilities also play a vital role in providing a safe and conducive learning environment for young children. Based on these findings, several recommendations can be made for Malaysian preschools. To enhance the attractiveness of their brands, preschools should focus on improving the quality of their curriculum and ensuring high academic standards. Furthermore, fostering stronger and closer relationships with parents can lead to higher levels of parental satisfaction and involvement. Lastly, investing in modern and attractive facilities can significantly enhance the overall appeal of the preschools. In conclusion, understanding the factors that influence parental preferences for preschool education is essential for educators and policymakers. By addressing these key areas, preschools in Malaysia, particularly in Pulau Pinang, can better meet the needs and expectations of parents, ultimately contributing to the overall improvement of early childhood education in the region.

Keywords: *preschools, early childhood education, Malaysian education, teaching*.

4. NB-004

Greening the Malaysia's Public Procurement: Unravelling Factors for Effective Government Green Procurement (GGP) Initiatives in Malaysia Towards Achieving SDG 12 Target

Mohamad Shahrizan bin Omar

Over the last 20 years, increased electrical consumption among Malaysians has contributed to a rise in carbon dioxide emissions in Malaysia. Therefore, the Government has imposed strong policies to mitigate these impacts. Government Green Procurement (GGP) refers to the process by which governments purchase products and services that have a reduced environmental impact throughout their life cycle. This paper investigates the factors for effective GGP initiatives in Malaysia a using qualitative methods, including interviews with officers in various ministries, reviewing official data from various government agencies, and conducting a literature review related to GGP. Findings indicate that there are four main factors that contribute to the improvement of GGP performance among ministries: having clear guidelines and targets, the availability of green products and services in the market, the presence of local GGP experts, and clear direction and support from top management. Conversely, there are seven main factors hindering GGP performance: difficulties with manual GGP reporting, lack of awareness among officers, the relatively high price of green items, lack of transparency about environmental impacts of the products among suppliers, the dilemma between GGP and ministry's main responsibilities, lack of enforcement, and irregular procurement patterns. These findings suggest that although GGP was established in 2016, significant improvements are still needed to ensure its success in achieving the SDG 12 target by 2030. To enhance GGP implementation, the current institutional structure should be reformed, a robust monitoring and evaluation system should be established, and new training structures should be designed.

Keywords: *Green Procurement, Government Procurement, SDG 12, Green Products and Services.*

5. **NB-005**

Trends and Implications of Technological Developments in Translation Studies
Mansour Amini and Kam-Fong Lee

Translation studies is an academic field within the broader area of language studies. Translation studies have drastically changed and developed over the last 20 years. This review paper explores technological developments from 2002 to 2022 in the translation industry, concentrating on their applications and effects. Using purposive sampling, the literature search encompasses topics such as "translation studies", "technological advancements in translation studies", "computer-aided translation", "machine translation", and "post-editing". It examines a range of sources, including academic journals, conference proceedings, and online databases, to learn about the most recent developments in the field. The findings of the review are categorised into five broad themes, namely the integration of technology in translation, media and cross-cultural communication in translation, global business and internalization translation, education and healthcare translation, and law and diplomacy translation. The adoption of advanced technology in the field of translation has had an essential impact on translation practice, changing the landscape of how translation is implemented, delivered, and implemented, as well as moving forward with the development of new tools, models, and techniques. Both the field of translation research and the various industries and sectors that depend on translation are likely to benefit from the implications of this review's findings.

Keywords: *Computer-Assisted Translation (CAT), Machine Translation (MT), Technology Integration, Translator*

6. **NB-006**

A Comparative Study of Traditional Kyo-Machiya in Japan and Traditional Malacca Townhouses in Malaysia
Nurdiyana Zainal Abidin, Husna Zainal Abidin, Liyana Hasnan, Linda Shafarina Hassan and Noor Hashimah Hashim Lim

Vernacular architecture is architecture built using commonly found materials found within the surrounding area of the native community. Vernacular architecture in Asian countries include heritage buildings such as timber houses and they are the most common type of traditional buildings found throughout the East and South-East Asia. The importance of the usage of locally sourced materials such as timber, bamboo, and even stones contributed to the unique designs of traditional dwellings found in different cultures throughout the world. Due to this, there are many architectural design similarities in vernacular buildings such as those found in Japan and Malaysia. This study focuses on traditional townhouses in Kyoto, Japan known as Kyo-Machiya and the traditional townhouses in Malacca, Malaysia. Traditional Kyo-Machiya are heritage buildings related to the vernacular architecture of Japan that functions as both residential buildings and commercial buildings. Traditional kyo-Machiya are timber townhouses with multiple functions, and they are similar to that of traditional townhouses in Malacca, Malaysia in terms of building materials, functions and typologies. This study aims to investigate and compare the architecture of Kyo-Machiya in Japan to that of traditional townhouses in Malacca, Malaysia. The objectives of this research are firstly, to investigate the design layout of Machiya and Malacca shophouses, and secondly, to compare the functionalities of the townhouses which information gathered can be used for future conservation works. The methodologies of this study are case studies of Kyo-Machiya and Malacca townhouses, document and content analysis through archival research, and on-site observations. The findings indicated the similarities and differences

in the architecture of the heritage buildings and the importance of preserving and conserving the Kyo-Machiya in Japan and the townhouses in Malaysia for future generations to come.

Keywords: *architecture, culture, heritage, machiya, townhouses*

Track 3: Law, Economy and Business

1. **NC-001**

The Impact of Precarious Employment on Work Engagement and Voice Behavior of Contract Based Employees

Roshayati binti Abdul Hamid and Wan Yusreena Ilya binti Wan Azizee

Voice behaviour is crucial for developing strategies to boost organizational competitiveness in a complex business environment. It involves employees proactively and constructively communicating their ideas, suggestions, or opinions within the organization. However, recently, numerous concerns have emerged regarding precarious employment. This type of employment refers to insecure work that lacks the benefits typically associated with contract-based positions. The current issues faced by contract-based employees in Malaysia have created an opportunity to examine the effects of different employment types on voice behaviour. Contract-based employees may feel that their temporary status diminishes the significance or impact of their input, leading to reluctance in expressing their opinions. Therefore, this study aims to investigate the relationship between precarious employment and voice behaviour among employees in the public sector. Additionally, work disengagement, characterized by a lack of emotional, cognitive, and physical investment in work tasks, is expected to mediate this relationship. Organizations can mitigate the negative effects of precarious employment by providing additional resources, such as organizational support. Hence, the objective of this study is to examine the direct impact of precarious employment on voice behaviour and to evaluate this relationship with work engagement as a mediator, while perceived organizational support acts as a moderator. Within the framework of Conservation of Resources theory, precarious employment is viewed as a condition where employees face increased risks of resource loss, which can deplete their motivation and lead to lower levels of work engagement, ultimately making them less likely to engage in voice behaviour. The participants of this study comprise contract-based employees from various public sector in Malaysia. Data collected were analysed using SPSS and SmartPLS 4.0 software, revealing support for both direct and indirect relationships. The results provided valuable insights into how contract-based employees engage and their willingness to provide constructive feedback in a public sector context. Understanding these dynamics can help organizations devise strategies to support precarious employees, boosting their engagement and fostering a culture of open communication.

Keywords: *Precarious Employment, Contract-Based Employee, Work Engagement, Voice Behaviour, Perceived Organizational Support.*

2. **NC-002**

Strategic Integration of Diversity and Inclusion in Corporate Sustainability Initiatives: A Comparative Analysis of Corporations in Malaysia and Japan

Ong Sin Ru

This study reviews the strategic integration of diversity and inclusion (D&I) in corporate sustainability initiatives, focusing on a comparative analysis of corporations in Malaysia and Japan. As sustainability becomes increasingly critical for long-term business success, previous studies indicate that integrating D&I into sustainability initiatives adds significant value.

Managing a diverse and inclusive workforce is a key component of corporate sustainable development in both developed and developing economies like Japan and Malaysia. In Malaysia, a multi-ethnic composition and supportive government policies present unique opportunities and challenges for D&I integration. Conversely, Japan's relatively homogeneous society and traditional corporate culture pose significant barriers, although government initiatives and demographic shifts are fostering a more inclusive environment. This study aims to explore how D&I initiatives contribute to corporate sustainability efforts within the cultural and organizational contexts of Malaysia and Japan. The study employs the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol to review relevant literature. A comprehensive literature search was conducted in Scopus and additional resources were used to gather extensive data on D&I in sustainability initiatives in Japan and Malaysia. The study incorporates peer-reviewed articles, gray literature, and institutional reports, evaluating them based on their relevance to D&I in sustainability initiatives. This review identifies strategic initiatives for sustainable development in corporations in Japan and Malaysia, highlights common challenges, and offers practical recommendations for organizational leaders and policymakers. Based on these findings, the authors propose a framework to guide future studies on the topic. This review contributes to the theoretical and practical understanding of D&I and corporate sustainability.

Keyword: *diversity, inclusion, sustainability, Japan, Malaysia*

3. NC-003

Economic Ripple Effect of Japan & China Investment in Malaysia via Input Output Analysis

Tan Wen Fei

Foreign Direct Investment (FDI) has been a cornerstone of Malaysia's economic development strategy, with Japan and China emerging as significant contributors. This study examines the economic ripple effects of Japanese and Chinese FDI in Malaysia through the lens of Input-Output Analysis (IOA), providing a detailed sectoral analysis of these investments' direct and indirect impacts on the Malaysian economy. The research highlights the substantial influence of Japanese FDI in high-tech manufacturing sectors, such as Electrical and Optical Equipment, and financial services, which have generated significant economic benefits. Similarly, Chinese FDI has been predominantly concentrated in the Real Estate Activities sector, driving notable economic growth and development. The comparative analysis reveals that while both countries' investments contribute uniquely to Malaysia's economic landscape, there are distinct differences in their sectoral impacts and economic ripple effects. This study provides critical insights into the dynamic role of FDI in Malaysia's economy which underscores the importance of sector-specific FDI, demonstrating how targeted investments can generate substantial economic benefits through various linkages and multiplier effects. Based on the findings, the study offers several policy recommendations for the Malaysian government. These include strengthening high-impact sectors through targeted incentives, improving data accessibility and quality, enhancing policy coherence and consistency, and investing in supportive infrastructure and technological advancements. Additionally, the study advocates for human capital development, sustainable development initiatives, and strengthening regional cooperation and trade agreements to further attract and maximize the benefits of FDI. Furthermore, the study suggests areas for future research, such as utilizing updated Input-Output Tables, conducting more detailed sector-specific and longitudinal studies, and developing methodologies to include the informal sector in economic analyses. Examining the role of specific government policies and technological advancements in shaping FDI patterns will also provide valuable insights. In conclusion, this research aims to inform policymakers and stakeholders, offering practical recommendations to optimize FDI strategies for sustainable economic growth and resilience in Malaysia. By

addressing identified limitations and implementing the proposed policies, Malaysia can enhance its economic resilience, ensure long-term prosperity, and maintain its competitive position as an attractive destination for foreign investment.

Keywords: *Foreign Direct Investment, Input-Output Analysis, Japan, China, Malaysia*

4. NC-004

Navigating Legal and Economic Challenges: A Business Perspective
Uzma Khan, Lyytinen Lescrauwaet and Warmiyana Zairi Absi

This study delves into the intricate interplay between business management and legal frameworks, shedding light on how legal considerations influence organizational strategies and operations. In today's multifaceted regulatory environment, businesses are tasked with maneuvering through a spectrum of legal aspects encompassing corporate governance, employment regulations, environmental mandates, intellectual property protections, and international trade pacts. The repercussions of overlooking legal risks are profound, leading to potential litigation, regulatory fines, and harm to a company's reputation. Hence, effective business management mandates the seamless integration of legal factors into decision-making processes across all facets of an organization. Through in-depth case analyses and theoretical dialogues, this paper underscores the significance of proactive legal oversight in nurturing compliance, risk mitigation, and bolstering corporate governance practices. By embracing a comprehensive approach to legal risk management and fostering a culture of legal consciousness and ethical conduct, enterprises can safeguard their long- term interests and fortify their competitive edge in the global arena.

Keywords: *Business Management, Legal Frameworks, Corporate Governance, Compliance, Risk Management.*

5. NC-005

Dynamics Between Malaysian Economic Growth and Greenhouse Gas Emissions in the Waste Sector
Insyirah Mohamad Shah, Hisanori Nei, Subashini Nadras, Hisham Hussain and Rafizah Mazlan

This paper provides a comprehensive time series analysis of the relationship between greenhouse gas (GHG) emissions in the waste sector and GDP and urban population in Malaysia using secondary data and compare it to other countries results. For regression, first differenced series of GHG and real GDP per capita in further analysis to ensure stationarity and level series for urban population, as it is already stationary. The VAR estimation results show that past values of GDP have a significant positive effect on current GHG emission, as indicated by the significant coefficients in the GDP equation. Urban population has significant impacts on the other variables, indicating its potential role in economic and cyclical dynamics. The Kuznets elasticity pattern suggests that Malaysia might be on the downward-sloping side of the Environmental Kuznets Curve (EKC), where continued economic growth can lead to environmental improvements.

Keywords: *Kuznets elasticity curve, economic growth, emissions, Malaysia, waste management*

Track 4: Engineering, Manufacturing, and Construction

1. **ND-001**

   Securing Smart Grids: Integrating Consumer-Centric Trust and Policy Dimensions through the House of Smart Grid Security Framework
   Amy Poh Ai Ling

   This research addresses the challenges of securing the smart grid (SG), a digitally enhanced electricity system integrating IoT technology. Unlike traditional grids, SG enables bidirectional communication and offers enhanced operational efficiencies but is susceptible to cybersecurity threats. Current frameworks focus on technological risks yet overlook crucial consumer privacy concerns. This study aims to model SG security integrating psychological (Sx) and policy (Px) factors to foster consumer trust (CTx).

   The research is motivated by gaps in understanding SG security's psychological and policy dimensions. It builds on previous work quantifying SG vulnerabilities and proposes a novel approach to assess critical social motivating factors impacting SG security levels. Employing multicriteria decision analysis and modeling techniques, the study will develop a House of Smart Grid Security (HoSGS) framework.

   Methodologically, the study comprises three main phases: (1) identifying critical motivating factors using a modified House of Quality (HoQ) approach, (2) devising an executable SG security strategy based on consumer insights and the 4Ps marketing mix, and (3) validating the HoSGS model across ASEAN 5 countries to assess SG security readiness and consumer engagement barriers.

   The research aims to introduce HoSGS as a novel model integrating psychological and policy aspects of SG security, filling a gap unaddressed by existing House of Security (HOS) frameworks. By enhancing consumer trust and participation in SG technologies, the study seeks to facilitate sustainable energy transitions aligned with global climate goals.

   In conclusion, this research proposes a methodological advancement in SG security assessment, contributing to the development of robust policy frameworks and market mechanisms that support SG diffusion in ASEAN 5 countries. The findings aim to guide policymakers and stakeholders in implementing effective SG security roadmaps, thereby fostering a resilient and trustworthy SG ecosystem poised for substantial growth in renewable energy capacity.

   Keywords: *Smart Grid, cybersecurity, House of Smart Grid Security (HoSGS), ASEAN 5, multi-criteria decision analysis*

Track 5: Health and Medicine

1. **NE-001**

   M.P.P.A.C (Malus Pumila Peel Antioxidant Cream)
   Chu Yu Zhe

   Ultraviolet radiation (UVR) has been the dominant causes of skin oxidative stress worldwide, associating with 1.5 million reports of skin cancer cases annually. Studies have shown that Americans roughly spend 722$ annually on skincare products and roughly 3000000 tons of apple waste are generated each year, resulting in methane gas production and thus exacerbate global warming. (M.P.P.A.C) focuses on implementing the antioxidant properties of polyphenols in fuji

apple peels to counter oxidative stress on skin caused by free radicals present in sunlight. 5 cream prototypes of increasing apple peel concentrations and 1 control are produced. Oil extraction method is used as a substitute for water-based polyphenol extraction due to higher radical scavenging properties of antioxidants which has been proven by extensive research. Antioxidant efficiency of (M.P.P.A.C) is determined by "Apple oxidation duration test ". 10 test per concentration is carried out and IBM SPSS statistical analysis is used. One Way-ANOVA results show that there is significance between control and M.P.P.A.C of all concentrations ((p=0.000), 1-way ANOVA,) with the highest efficiency being (AP-100) with 92% of apple slice assay antioxidant protection after 24 hours. Shinoda test of red color observation further confirms the presence of active antioxidant flavonoid, anthocyanin in (M.P.P.A.C.) Extensive research concludes that Anthocyanin and Quercetin glycosides in (M.P.P.A.C) exhibit antioxidant properties by scavenging free radicals. Chlorogenic Acid (CA) in (M.P.P.A.C) acts as a protective compound against inflammation and aging by decreasing pro-inflammatory cytokines IL-1β and TNF-α, in UV-induced skin fibroblast cells. Anthocyanin also inhibits protein oxidation, elevation of cyclobutene pyrimi-dine dimers (CPD), and 8-dihydro-2'-deoxyguanosine (8-OHdG). This further concretes the protective effects against the oxidative damage to proteins and DNA. (M.P.P.A.C) with 20% of production cost compared to costly synthetic suncreams is projected to be an idealized domestic skincare alternative. (M.P.P.A.C) is a novel, eco-friendly, and natural suncream, furthermore reduce waste disposal of apple peels.

Keywords : *apple peels, antioxidant, skincare, eco-friendly, cost-effective*.

Track 6: Cross-disciplinary and Other Emerging Areas

1. **NF-001**

Challenges and Considerations in Implementing a Feebate Policy for Malaysia's Shipping Industry

Siti Marsila Mhd Ruslan and Benjamin Craig Mclellan

A feebate policy for the shipping industry is a market-based mechanism designed to incentivize the reduction of GHG emissions. Under this system, ships or shipping companies that emit more GHGs than a set benchmark would pay a fee, while those that emit less would receive a rebate. This policy aims to encourage investment in cleaner technologies and practices by creating a financial incentive structure. So far, Malaysia has not implemented a feebate policy for the shipping industry due to a combination of economic, regulatory, and practical challenges. Economically, the costs associated with such a policy could impact the competitiveness of Malaysia's shipping sector, potentially affecting trade volumes and economic growth. Politically, establishing a robust regulatory framework for monitoring, enforcing emissions standards, and managing fees and rebates is complex and resource intensive. Additionally, unilateral action may place Malaysian shipping companies at a competitive disadvantage in the global market, necessitating international coordination through bodies like the International Maritime Organization (IMO). Practical challenges include the need for advanced emissions monitoring systems and ensuring compliance and enforcement across the industry. Resistance from the shipping industry, due to potential cost increases and operational changes, further complicates policy adoption. Alternatively, Malaysia might favor voluntary measures, providing incentives for adopting cleaner technologies through subsidies, tax incentives, or grants. The country may also seek to address shipping emissions through international agreements and collaborations, offering a more coordinated and potentially effective approach. In summary, while a feebate policy could effectively reduce emissions in Malaysia's shipping industry, the associated economic, regulatory,

and practical challenges have led the country to explore other strategies and international cooperation to achieve environmental goals.

Keywords: *feebate policy, Malaysia, shipping industry, IMO, GHG*

Poster Presentation

Track 1: Science and Technology

1. **PA-001**

Two-step Water Splitting Thermochemical Cycle Based on Magnesioferrite Foam Device for Solar Hydrogen Production

Itou Kazuhiro, Nur Syazana Suhaila

Recently, producing hydrogen has emerged as a focal point in renewable energy efforts, positioned as a clean and safe energy carrier pivotal for global decarbonization initiatives. The thermochemical two-step water-splitting cycle using ceria (CeO_2) and magnesioferrite ($MgO+xMgFe_2O_4$; x=0.6, 0.3) foam device was studied for hydrogen production from water. Small-scale foam devices of ceria and magnesioferrite were fabricated using the replica method and tested in a conical-shaped solar reactor made of SUS310S stainless steel, capable of withstanding temperatures up to 1600°C. The reactor facilitated continuous two-stage reactions: thermal reduction (TR) at 1400°C for 45 minutes with 2.0 Ncm^3/min nitrogen flow, followed by water decomposition (WD) at 1200°C for 60 minutes under 0.5 Ncm^3/min nitrogen and 0.013-0.016 Ncm^3/min steam flow. Gas analysis confirming oxygen and hydrogen production was done via mass spectrometry. $MgO+0.6MgFe_2O_4$ exhibited 1.5 times faster oxygen production than CeO_2 by the fifth TR cycle, despite both materials showing similar reaction times. Decreasing foam porosity from 90% to 80% enhanced mechanical strength and increased hydrogen production without compromising oxygen yield. Increasing water vapor flow from 0.013 Nm^3/min to 0.016 Nm^3/min improved $MgO+0.6MgFe_2O_4$ device performance, sustaining hydrogen production through the fourth cycle despite sintering effects. Adjusting firing conditions to 1600°C for 5 hours during foam fabrication enhanced stability and reduced sintering, increasing hydrogen production by approximately 1.7 times. Shifting to $MgO+0.3MgFe_2O_4$ composition raised the melting point, preventing sintering and ensuring sustained hydrogen production over five cycles with an improved hydrogen-oxygen ratio (~1.8). Magnesioferrite outperformed CeO_2, yielding 2-3 times more hydrogen, emphasizing the critical role of optimizing material composition, porosity, and processing conditions for efficient solar-driven hydrogen production.

Keywords: *water-splitting, hydrogen production, magnesioferrite, solar thermochemical cycle, foam device*

2. **PA-002**

Selecting Suitable Nature-Based Solutions for Flood Resilience in Kota Tinggi, Malaysia using Multi-Criteria Decision Analysis (MCDA) Approach

Balqis Ibrahim, Zulfa Hanan Ash'aari and Zed Zulkafli

Increased frequency and intensity of flood events in Kota Tinggi, Malaysia, necessitate effective strategies to improve flood resilience. Nature-based solutions (NbS) are emerging as a promising approach for sustainable flood adaptation and mitigation. This study utilizes the methodological approach in selecting appropriate NbS options for Kota Tinggi using Multi-Criteria Decision Analysis (MCDA). A two-phased approach was employed. Firstly, RECONECT's Measure Selector

tool, a web-based tool was used to generate an initial list of NbS aligned with local conditions in Kota Tinggi. Following the initial screening, MCDA, a decision-making approach that considers multiple criteria was then used to evaluate the shortlisted NbS options. The MCDA framework incorporated effectiveness in flood mitigation, environmental impact and social benefits as key criteria. Each criterion was assigned a weight based on its relative importance through a comprehensive literature review and each NbS option was scored based on its performance in each criterion. Floodplain restoration and wetland restoration emerged as the most favorable options with the highest MCDA scores. This indicates their potential for significant flood mitigation alongside positive environmental impacts and moderate social benefits. Other shortlisted NbS including re-meandering, retention ponds and riparian buffers received generally lower scores due to their effectiveness limitations. The findings would provide valuable insights for decision-makers in guiding the selection and implementation of NbS, emphasizing the importance of considering local conditions to optimize flood preparedness and adaptation strategies in flood-prone regions.

Keywords: *flood, multi criteria decision analysis (MCDA), nature-based solutions (NbS)*

3. PA-003

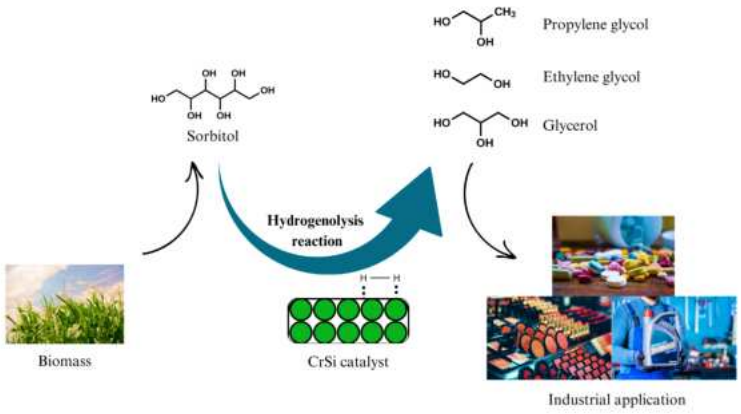
Biomass Conversion to Biofuels: Sorbitol Hydrogenolysis via Chromium Oxide Silica Catalyst

Nur Hazirah Rozali Annuar, Zulaikha Athirah Alexzman, Nurrulhidayah Salamun and Rohayu Jusoh

Due to the depletion of world's fossil fuel reserves and influence of gas emissions on the planet's climate, the chemical sector tries to replace these non-renewable raw materials with those derived from renewable sources. One of the sources of biomass which is sorbitol can be converted into biofuels via catalytic process. The controlled conversion of sorbitol into lower molecular weight alcohols like glycols and alkanes via hydrogenolysis has been extensively explored for producing industrially significant chemicals and transport fuels. Chromium Oxide Silica (CrSi) catalyst has a remarkable thermal stability and versatile catalytic capabilities. The unique combination of chromium oxide and silica significantly enhance their performance in the catalytic reaction. It can be utilised in the petrochemicals, oil and gas industry since the CrSi and sorbitol are cost effective materials. CrSi catalyst was prepared using the sol-gel method and were characterized by N2 physisorption analysis, X-ray diffraction (XRD), Fourier-Transform Infrared Spectroscopy (FTIR), Thermogravimetric Analysis (TGA), and Scanning Electron Microscopy (SEM). Additionally, NH3-TPD analysis was employed to assess the acidity of the catalysts. The results indicated the presence of ordered mesopores with uniform pore sizes in the synthesized catalyst and exhibited high total acidity, which correlated with its catalytic performance. The catalytic activity of CrSi catalyst was tested in the sorbitol hydrogenolysis reaction to produce biofuels which are propylene glycols and ethylene glycols in a stirred high-pressure reactor under various process conditions. The synergistic interaction between Cr and Si is crucial, resulting in increased overall activity and making CrSi an effective catalyst for the conversion of sorbitol to glycols. The morphology of SiO2 also appears to influence its catalytic activity, which is connected to the available exterior surface for metal dispersion. Under reaction circumstances, CrSi exhibits relative stability and can be reused multiple times, with five consecutive runs on the same catalyst showing only a minor reduction in activity. The results imply that CrSi is a promising catalyst for the conversion of biomass to biofuels via sorbitol hydrogenolysis and can be used as an alternative in replacing fossil fuels.

Keywords: *biomass, biofuels, sorbitol hydrogenolysis, chromium oxide silica, glycols.*

Graphical Abstract



4. PA-004

Waste + Water = X

Pramila Tamunaidu, Nurhamieza Md Huzir, Muhammad Bukhari Rosly, Azlan Nur Rasyid Amin and Mohd Hidayat Hussin

Circular transition of waste is a systemic approach aimed at transforming waste materials into valuable resources, products, or energy through various processes such as recycling, upcycling, composting, product recovery and all forms of waste-to-X (WTX) technologies. Among many WTX technologies, subcritical water (SCW) technology, also known as hydrothermal treatment stands out as it uses only water at high pressure and temperature conditions to break down all kinds of organic waste matter. This advanced technology highlights several added advantages such as the capability of short reaction time, environmentally friendly solvent i.e water, no incineration, no emission of harmful gases and provides complete disinfection of bad bacteria and viruses in the waste by sterilization, deodorization, detoxification, and decomposition. The output from SCW process comprises of organic rich materials which can be formulated into various value-added products and at the same time enhance the nutritional quality of organic waste used through rapid hydrolysis. The use of SCW technology approach towards circular economy promotes a sustainable approach to solid waste management through waste + water = X.

Keywords: *Waste-to-X, Subcritical Water, Products, Zero Waste*

5. PA-005

Javanese Medaka, Oryzias Javanicus, an Excellent Model Fish for Microplastics Research in Malaysia and Indonesia

Hilda Mardiana Pratiwi, Suhaila Rusni and Koji Inoue

Microplastics (MPs) are generally defined as small plastic particles with size less than 5 mm. In recent decades, Southeast Asia is well-known for becoming the hotspot for MP pollution. MPs have become significant threats to marine ecosystems in Southeast Asian countries, especially Malaysia and Indonesia. It is crucial to conduct field studies to assess MPs status, but laboratory studies are also vital for understanding the toxicity effects of MPs on organisms. We have

proposed a Southeast Asian native medaka fish, Javanese medaka (Oryzias javanicus), as an excellent model animal for studying MPs in the laboratory.

Using bibliometric analysis approach of the literature search on Web of Science database, we found 197 publications related to MP studies in Malaysia and Indonesia were published between 2017 to 2023. The article numbers tended to increase exponentially over the years. Among these publications, fish were found to be the most frequently noticed animals in MP-related articles in both countries with 16% of the total articles were from field studies, while only 2% came from the laboratory settings. Despite of the high abundance and occurrence of MPs in two countries, the toxicity test of MPs in fish is still limited currently. Next, we investigated the use of fish for toxicity test in Malaysia and Indonesia. We analysed 91 articles and listed the top 10 species of fishes that usually employed for laboratory testing in both countries. Subsequently, we summarized the characteristics of Javanese medaka and its recent habitat distributions in Malaysia and Indonesia. We also introduced our previous studies about the basic mechanism of MP ingestion in marine and freshwater fish using Javanese medaka. In this presentation, we will discuss the benefits of using Javanese medaka as model fish for MP research at local laboratory in Malaysia and Indonesia.

Keywords: *Microplastics, Marine pollution, Bibliometric analysis, Euryhaline fish, Toxicity test*

6. PA-006

Enhanced Photodegradation of Benzophenone-3 using Silver Doped Zinc Oxide Photocatalyst

Saidatul Sophia Sha'rani, Liau Hui Yin, Nurfatehah Wahyuny Che Jusoh, Eleen Dayana Mohamed Isa

Benzophenone-3 (BP-3) is a persistent, bioaccumulative, and toxic UV filter extensively used in cosmetic products namely sunscreens, soaps, hair styling products, and more. Its presence in water bodies posed adverse impacts to aquatic ecosystems, thus, an effective BP-3 removal technique is highly sought after. This study investigates the photocatalytic degradation of BP-3 using silver-doped zinc oxide (Ag/ZnO) synthesized via co-precipitation method. Characterization of the catalyst was performed using X-Ray Diffraction (XRD) and Fourier Transform Infrared Spectroscopy (FTIR). Both the analyses confirmed the presence of Ag, as the peak intensity of Ag increases with higher Ag loading. Photodegradation experiments demonstrated that the catalyst dosage, initial BP-3 concentration, and Ag loading significantly influence the degradation efficiency of BP-3. Initially, the degradation efficiency increased with increasing catalyst dosage (1.0 g/L) and initial BP-3 concentrations (5mg/L), reaching an optimum, 93.7% using 3% Ag/ ZnO. However, the efficiency declined afterward due to the particle agglomeration and sedimentation. Additionally, kinetic studies revealed that the photodegradation process follows pseudo first-order kinetics, with the highest reaction rate observed for 5% Ag loading (0.0622 min -1). The findings suggest that Ag/ZnO photocatalysts significantly enhance the degradation of BP-3 compared to pure ZnO, offering a promising solution for mitigating the environmental contamination of cosmeceutical waste in aquatic systems.

Keywords: *benzophenone-3, pharmaceutical waste, photodegradation, silver-doped zinc oxide.*

7. PA-007

HIV-Tocky system in primary CD4+T cells joined with transcriptomic and epigenomic analysis to discover mechanism involves in the establishment of HIV latency

Wajihah Sakhor, Kenji Sugata, Benjy Tan Jek Yang, Kazuoki Monde, Chihiro Motozono, Ryusho Kariya, Omnia Reda, Akhinur Rahman, Sharmin Nahar Sithi, Misaki Matsuo, Hitomi Nakamura, Seiji Okada, Takamasa Ueno, Yasuko Sagara, Hiroaki Takeuchi, Masahiro Ono, Kenji Maeda, Yorifumi Satou

The presence of transcriptionally silent but replication competent provirus in latent reservoir forms major barrier towards HIV cure. Latently infected cells are established early during acute infection however the mechanism of latency establishment is not well understood. As it is not possible to study this acute phase ex vivo, there is a need for HIV latency establishment model in vitro. This study utilizes HIV-Tocky system previously developed in our lab to monitor the dynamics of HIV gene transcription over time coupled with single cell multiomic (scRNA-seq and scATAC-seq; Assay for Transposase-Accessible Chromatin) to obtain parallel information on the transcriptome as well as epigenetic profile of the same cell at single cell level. Fluorescent Timer or Tocky is a mCherry-derived monomeric fluorescent protein that initially emits blue (t ½ ~ 4h) followed by red fluorescence (t ½ ~ 120h) which allow us to observe progressions of infected cells from productive (blue), persistence (violet), just silenced (red) to latent infection (no color) with time. Primary CD4+ T cells were activated prior to infection with single round NL43-Tocky. Following detection of Tocky expressions by flow cytometry analysis, each cell populations were sorted and processed using 10x Chromium's single cell multiome kit. Detection of no color and red populations supports the hypothesis that latency can be established directly after infection or expressed and then going into silenced. Single cell data analysis shows that upon receiving activation signals and infection, there's 3 major cell clusters; non-cycling, cycling and pro-apoptotic clusters. In each cluster of cells latency can be established, this hinted towards different latency regulation and shows the heterogeneity nature of latency. Currently we are looking at the dynamics of epigenomics, transcriptomics and integration site, to discover potential factor regulating the difference in route of latency establishments.

Keywords: *HIV-1, HIV-1 latency, single cell multiome, HIV-Tocky*

8. PA-008

Transformative Wisdom: Bridging Theoretical Insights with Practical Application in Zero Waste Technology for a Sustainable Future.

Leo Dyaji, Fauziah and Shakeel

Integrating theoretical insights with practical applications is urgently needed to address escalating environmental challenges. This research, "Transformative Wisdom: Bridging Theoretical Insights with Practical Applications in Zero Waste Technology for a Sustainable Future," elucidates the critical role of wisdom in turning academic knowledge into sustainable practices. The study highlights the interplay between foundational concepts in environmental sustainability and real-world implementations, emphasizing the transformative potential of zero waste technologies. Using a multidisciplinary approach, it combines literature review, case study analysis, and expert interviews to explore innovative strategies and interdisciplinary collaborations in zero waste technology. Key results show the application of organic waste decomposition theories and nutrient cycles in developing compost for aquaponic systems,

enhancing sustainable agriculture. Urban case studies reveal how advanced recycling systems and waste-to-energy plants reduce landfill use and increase resource recovery, applying waste management theories effectively. In the industrial sector, circular economy principles illustrate how companies transform waste streams into valuable resources, showcasing the practical application of theoretical insights into material flow and resource efficiency. By highlighting collaborative efforts among engineers, environmental scientists, policymakers, and community stakeholders, the study underscores the importance of cross-disciplinary initiatives in bridging theory and practice. Leveraging transformative wisdom, this approach supports the successful implementation of zero waste technologies, driving us towards a more sustainable and resilient future.

Keywords: *Transformative wisdom, Theoretical insights, Practical applications, Zero waste technology, Environmental sustainability, Interdisciplinary collaboration.*

9. PA-009

Treatment of Oilfield-Produced Water using Mussel-Inspired Upcycled Alginate-Coated Graphene Oxide-Polyethersulfone Membranes

Nur Hashimah A and Muhammad Noorul Anam MN

Oil and gas exploration and production generated billions of barrels of oilfield-produced water (OPW) annually, making it the most abundant by-product. Therefore, efficient and effective separation of OPW has become a significant challenge, as it is a cornerstone of water management that must meet regulatory standards for discharge and disposal into the environment. Membrane separation technology has historically provided dependable separation performance for treating OPW. However, severe membrane fouling problems have necessitated an alarmingly urgent technological advance. To address this concern, this study aims to synthesise a novel membrane material to perform efficient OPW membrane separation performances. GO-PES hollow fiber membranes were fabricated and coated with upcycled alginate (UA) from dental waste through mussel-inspired dopamine (DOPA) coating. In this study, different loadings of UA were employed to examine the effect of the physicochemical and thermal properties of the membranes on separation performances in terms of pure water flux, OPW permeates flux and oil rejection. The physicochemical and thermal properties of the prepared membranes were characterised. The fabricated membranes obtained a decent morphological structure and uniform UA coating on GO-PES hollow fiber membranes. Good physicochemical and thermal properties, and higher water affinity of UA enhanced the membrane hydrophilicity. The pure water flux of the fabricated reduced from 178.7 Lm^{-2} h^{-1} to 10.1 Lm^{-2} h^{-1}, upon increasing loading of UA up to 10wt%, due to the increase of membrane resistance. Similarly, the OPW permeate flux is also reduced upon increased of UA loadings. The highest OPW permeate flux was obtained by GO-PES membrane with 0.5wt% loading of UA (13.0 Lm^{-2} h^{-1}). However, although the increase of UA loading has decreased the permeate flux, oil rejection increased with higher loading of UA up to 98.2%, confirming a good attachment of UA coating on the membrane using DOPA. Besides that, the improved rejection could plausibly be due to the size-exclusion mechanism which selectively allows smaller oil droplets to pass through the membrane pores and increase the rejection. To conclude, this study recommends the potential application of UA-coated GO- PES membranes for the future development of membrane technology for treating OPW, especially for onshore and offshore petroleum facilities.

Keywords: *oilfield-produced water, membranes, alginate, graphene oxide, mussel inspired.*

10. **PA-010**

Human Posture Monitoring Based on AI System

Muhammad Adri Haqimi, Shahrol Mohamaddan, and Mariyam Jamilah Homam

Good posture is a practice of maintaining the body's alignment and balance while sitting, standing, or moving. Good posture is important to support overall health and prevent discomfort. However, maintaining a good posture is not an easy task. Humans tend to execute a bad posture while performing activities of daily life (ADLs). Therefore, there is a need to monitor and analyze human posture in real life. This study aims to develop a system that can identify and alert users about bad postures in real time. Visual recognition and artificial intelligence (AI) systems will be applied to monitor and detect the bad posture. The systems then provide real-time feedback on posture correction, thus helping the subject to maintain a good posture state. Digital cameras will capture images and videos and process them to analyze the body shape, alignment, and movement patterns of the user. Through detailed examination, the system identifies any deviations or abnormalities in posture, such as slouching, forward head position, or uneven shoulders. The image-based sensor system for posture detection is a powerful tool that harnesses the latest advancements in computer vision and machine learning to address a critical aspect of modern health. By promoting better posture and preventing related problems, this project has the potential to make a meaningful impact on the quality of life for many individuals.

Keywords: *Posture monitoring system, Artificial Intelligence, Image-based sensor, Posture*

11. **PA-011**

Smart Autonomous Mobile Water Sprinkler using IoT Approach

Nazwa Nazhimuddin, Shahrol Mohamaddan and Mariyam Jamilah Homam

Agriculture plays a crucial role in maintaining the economy, environment and health. This study presents the implementation of an autonomous water sprinkler system which is aimed for optimizing irrigation practices. The system is also providing flexibility by allowing the system to be used in a smaller scale such as residential gardens. The system integrates soil moisture sensors, weather data, and machine learning to independently determine the precise water needed for the crops. By using IoT approach, the system can adapt to environmental conditions to ensure efficient water usage and promoting sustainable agriculture. It is a scalable solution to enhance crop yields and maintain garden landscapes with minimal effort. Early tests demonstrate significant improvements in water conservation and plants health, which showcases the potential of this technology to improve the quality of agriculture sector.

Keywords: *Agriculture, Autonomous, IoT, Sustainable, Quality*

12. **PA-012**

Crash Avoidance System using Microsleep Detector

Wan Afif Amjad Wan Sukhairi, Shahrol Mohamaddan and Mariyam Jamilah Homam

Traffic accidents caused by microsleep are significant safety concern, often resulting in severe injuries. Microsleep or unintended episode of loss of attention associated with events such as slow eye blinking, yawning, or eye closure, can be particularly dangerous for drivers. This research aims to develop a system to detect microsleep episodes and alert drivers to prevent accidents, thus enhancing driver safety and well-being. The methodology involves embedding a detection system within a vehicle. The system includes a camera to monitor the driver's eyes and mouth, a buzzer and speaker to issue audible alerts, and an LED to provide visual warnings. When the system detects signs of drowsiness, such as yawning or eye closure, it activates the alerts to wake

the driver and suggests rest. This functionality is enabled by integrating hardware components with real-time image processing and analysis software tools. The microsleep detection system offers a viable solution to enhance road safety by mitigating the risks associated with driver fatigue. By employing advanced image processing techniques and real-time monitoring, this system provides an effective countermeasure against microsleep-induced accidents.

Keywords: *Microsleep, Traffic safety, Drowsiness detection, Image processing, Vehicle safety system*

13. PA-013

Fine-Tuning the YamNet Audio Classification Model
Casper Marc Sluitman, Shahrol Mohamaddan, Motoki Takagi and Akihiko Hanafusa

The perception of environmental sounds is an important facet of human awareness. Though deaf individuals rely on other senses altogether, there is a wide spectrum of debilitation between unimpaired hearing and full deafness. Many within this spectrum unable to perceive environmental sounds are yet ineligible to receive assistive devices through public channels. Previous research has shown a path towards bridging this shortfall through a machine learning model able to detect five identified environmental sound classes, capable of running on the mobile devices people already own. This new research serves to improve upon the previous model by reusing the gathered data to fine-tune a state-of-the-art sound classification model. For this purpose, the YamNet model was ran for every audio sample; supplanting each with 522 class probabilities, alongside the 1024 embeddings on which these are based. Each were mapped to the five target classes using two distinct models: a six-class model with an “other” category for irrelevant inputs, and five binary models working in tandem. The dimensions of these models were decided upon through a grid search. The best models tended to be quite small, which would have put them at a lower risk of overfitting. Training on the class probabilities appeared to be the best strategy for the six-class models, while the binary models did best when training on the embeddings — the latter contain more information, while the former are easier to interpret. These results could therefore indicate that the six-class models preferred simpler heuristic strategies, while the binary models had the leeway to build up the complex strategies required to interpret more abstract relationships. The best binary models performed better than the best six-class models, but they required an especially large number of parameters. It was therefore concluded that a small six-class model trained on the class probabilities would be the most efficient way to classify the five desired sound classes.

Keywords: *Machine learning, Audio classification, Fine-tuning, YamNet*

14. PA-014

Development of an Upper Limb Telerehabilitation System for Stroke Patients: A Study on VR Environment
Anusha Ashok, Shahrol Mohammadan, Akihiko Hanafusa, Motoki Takagi, Annisa Jamali

Stroke is one of the leading causes of death around the world. The primary cause of a stroke is an unhealthy lifestyle. One of the major side effects of stroke is the loss of upper limb motor function. Conventional rehabilitation systems such as end effectors are quite bulky and not easy to carry around. This creates the need for an approach using telerehabilitation. Telerehabilitation refers to providing post-care services to patients while they are at their homes. Current telerehabilitation methods are not considering patient adherence and motivation throughout the programs. The proposed system aims to develop a telerehabilitation system for stroke patients by integrating gamification with a VR (Virtual Reality) headset and the IMU (Inertial Measurement

Unit). In the headset, the patient will perform various tasks repeatedly and the IMU will collect data on the movements performed. The data is then seen by the therapist and discussions with the patient will be conducted. The telerehabilitation system will be given to the patient in the form of a repetitive program. The patient is expected to use the system daily for several weeks or months depending on the improvements and extent of rehabilitation needed. By improving the upper limb motor function of patients, this project aims to assist patients to perform their activities of daily life (ADLs) effectively.

Keywords: *Stroke, Telerehabilitation, Virtual Reality, Inertial Measurement Unit*

15. PA-015

Servo based Real-time Object Tracking System

Chow Chan Hoe, Shahrol Mohamaddan and Noorhazirah Sunar

This study explores the application of machine vision for real-time object-tracking purposes. It combines the computing of computer vision with the mechanical actuator of servo motor in a microcontroller. Related to the study of AI computer vision by using OpenCV, it enables the computer to interpret and understand visual information from the real-world, followed by related action based on the requirement. The primary objective of this project is to develop a closed-loop feedback system that can detect and track a moving object by using real-time image processing and servo motor adjustments for its position. Once an object is detected, the system will continuously update the position and adjust the orientation of the camera in the tracking platform by using two servo motors (x-axis and y-axis). In the robotics field, it can be essential for autonomous navigation and manipulation of the machine as it can identify and interact with moving objects. This will enhance the automation process to perform tasks with greater accuracy and efficiency, reducing errors and improving productivity. In the biomedical field, it can be useful in-patient monitoring, medical imaging, and surgery assistance. It can keep track of the position of patients from time to time to ensure that they are always under supervision. For medical imaging, it can make sure that the device can stay focused on the specific regions to ensure accurate diagnostics and treatment. In conclusion, this project integrates the study of computer vision systems with servo control which provides a valuable tool for various purposes, including enhancement in automation as well as healthcare devices.

Keywords: *Object tracking system, Artificial Intelligence (AI), Real-time processing computer vision, Servo motor controlled*

16. PA-016

Nuclear Structures in Neutron-rich Nuclei ^{141}Xe and ^{143}Xe Investigated by β-γ Spectroscopy

Nurhafiza M. Nor, A. Odahara, A. Yagi, R. Lozeva, C.-B. Moon, S. Nishimura, H. Nishibata, P. Doornenbal, G. Lorusso, T. Sumikama, H. Watanabe, F. Browne, Z.Y. Xu, J. Wu, R. Yokoyama, T. Isobe, H. Baba, H. Sakurai, H. Suzuki, N. Inabe, D. Kameda, N. Fukuda, H. Takeda, D.S. Ahn, Y. Shimizu, T. Kubo, S. Iimura, Y. Fang, R. Daido, T. Ishigaki, S. Morimoto, E. Ideguchi, T. Komatsubara, M. Niikura, I. Nishizuka and the EURICA collaborators.

Study of nuclear shape change from spherical to prolate deformation as increase of neutron and/or proton numbers is one of the most important subjects to understand nuclear interaction. Neutron-rich nuclei with A ~ 140 in the north-east transitional mass region beyond the doubly magic nucleus ^{132}Sn (Z = 50 and N = 82), are expected to exhibit various nuclear structures with prolate collectivity and with mixing of small octupole collectivity.

Experiment was performed as a part of Euroball RIKEN Cluster Array (EURICA) project at RI beam factory (RIBF), RIKEN, based on β-γ spectroscopy. Neutron-rich nuclei were produced by in-flight fission of ^{238}U beam with energy of 345 MeV/nucleon and intensity of ~5 pnA bombarding on a Be target. Fragments were separated and identified through BigRIPS separator and ZeroDegree spectrometer. Particles and β rays were detected by 5 double-sided silicon-strip detectors and γ rays were detected by EURICA.
In this work, ^{141}Xe (N = 87) and ^{143}Xe (N = 89) are studied by the β decay of ^{141}I (N = 88) and ^{143}I (N = 90), respectively. Two γ rays and two levels in ^{141}Xe, and 13 γ rays and seven levels in ^{143}Xe are newly found by analysis of β-γ and β-γ-γ coincidence data. Decay schemes of the β-decay of ^{141}I to ^{141}Xe and of ^{143}I to ^{143}Xe are constructed for the first time. Nuclear structure of the low-lying states in ^{141}Xe and ^{143}Xe is discussed with comparison of the theoretical calculation and of those in N = 89 isotone ^{145}Ba, respectively. From these information, gradual change of nuclear structure in ^{141}Xe and ^{143}Xe is suggested to appear with increase of prolate collectivity.

Keywords: *nuclear structure, physics*

Track 2: Social Sciences and Humanities

1. **PB-001**

From Knowledge to Wisdom: Applying Cross-Cultural Psychological Capital and Service-Oriented Organizational Citizenship Behavior to Reduce Turnover Intention

Daria Gom, Tek Yew Lew, Mary Monica Jiony, Geoffrey Harvey Tanakinjal, and Stephen Sondoh, Jr

Purpose: The purpose of this study is to investigate the mediating role of service-oriented organizational citizenship behavior (OCB) in the relationship between cross-cultural psychological capital (PsyCap) and turnover intention (TI) among millennial employees in the hotel industry. The study aims to provide actionable insights for hotel managers to enhance employee retention by leveraging cross-cultural PsyCap and service-oriented OCB.

Methodology: This research employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze data collected from a survey of millennial employees working in the hotel industry. The PLS-SEM approach allows for the assessment of complex relationships between latent variables, offering robust results for theory testing and practical implications.

Results: The results indicate that cross-cultural PsyCap does not have a significant direct effect on turnover intention. However, service-oriented OCB significantly mediates the relationship between cross-cultural PsyCap and TI. Specifically, higher levels of service-oriented OCB are associated with lower turnover intentions, demonstrating service-oriented OCB's critical role in translating cross-cultural PsyCap into reduced employee turnover. The analysis confirms that service-oriented OCB negatively impacts turnover intention, highlighting its importance in the retention of millennial employees.

Interpretations: The findings suggest that while cross-cultural PsyCap alone may not directly influence turnover intention, its positive effects are realized through the enhancement of service-oriented OCB. This mediation effect underscores the value of fostering a work environment that promotes service-oriented OCB, which in turn mitigates turnover intentions. For hotel managers, this implies that investments in developing employees' psychological capital and encouraging service-oriented behaviors can lead to significant improvements in retention rates.

Conclusions: This study contributes to the existing literature by elucidating the indirect effects of cross-cultural PsyCap on turnover intention through service-oriented OCB. The practical application of these insights can guide hotel managers in implementing strategies that enhance PsyCap and service-oriented behaviors among millennial employees. Ultimately, this research underscores the transformation of theoretical knowledge into practical wisdom, demonstrating how understanding and applying cross-cultural PsyCap and service-oriented OCB can address the critical issue of employee turnover in the hospitality industry.

Keywords: *cross-cultural psychological capital, service-oriented organizational citizenship behavior, turnover intention, millennial*

2. PB-002

The Moderating Effect of Environmental Practices on the Relationship between Service Quality and Customer Experience in a Hotel Industry

Raini Anne Laipan , Mazalan Mifli, Oscar Dousin, Bamini KPD Balakrishnan

This study aims to investigate the moderating variable of environmental practice on the relationship between service quality and the customer experience in the hotel industry in Malaysia. The profound effect of environmental practices among hoteliers across the globe that have positive links to hotel guests' preferences on accommodation choices has been documented. The influence of service quality has been long known in literature to have a profound effect on hotel guest experiences. Yet, this paper presented the result of a survey of 150 hotel guests that was recently carried out in four and five-star rated hotels in Malaysia. A variance based of structural equation modelling (PLS-SEM), a component-based structural equation modeling, using SmartPLS version 4, was used to estimate the interaction effect of the moderating variable of environmental practices on the link between the endogenous variable of service quality and exogenous variable of customer experiences. A structural model was then put forward with its respective measurement models along with the indicators that were newly developed. The result shown that environmental practices have a significant moderating effect at $\rho<0.05$ suggested of positive indications to increase of occupancy growth percentage. Practical implications were further discussed and for hoteliers that have not done so are ought to incorporate the importance of green practices.

Keywords: *Environmental Practices, Service quality, Customer Experience, Malaysian Hotel*

3. PB-003

Knowledge Transfer Program (KTP) and The Community: Enhancing Communication and Personal Capacity

Mary Monica Jiony, Geoffrey Harvey Tanakinjal, Noor Hassnah Husin and Juliana Jimis

Purpose: The study aims to evaluate the effectiveness of the "Bring Forth Your Inner Worth" module, which integrates Neuro-linguistic Programming (NLP) in training methods at an autism center. Researchers developed a framework to assess the module's impact on interpersonal communication, self-efficacy, and personal skills among trainers, teachers, and employees. This framework included pre- and post-training assessments, workshops, on-the-job observations, and participant interviews to gauge knowledge transfer and overall effectiveness.

Methodology: The study included 18 participants from the Seri Mengasih Centre in Sabah, Malaysia, consisting of trainers, teachers, and staff working with intellectually challenged individuals. It involved two workshops, followed by an observation period to assess participants' application of workshop content. Pre- and post-training assessments were conducted to measure

changes in knowledge and skills, while interviews provided insights into participants' experiences and perceived benefits.

Results: Pre-training assessments revealed low baseline knowledge levels, which markedly increased post-training revealing participants enhanced self-confidence, better emotional regulation, and improved interpersonal communication. The hands-on approach of on-the-job observations was particularly effective, as participants valued the practical application and feedback received. Interviews highlighted the demand for continued training in critical thinking and communication.

Interpretations: The results highlight the importance of tailored training programs that incorporate NLP techniques within a knowledge transfer framework, aligned with learners' needs and focused on practical application. The module's effectiveness is evident in the heightened engagement and positive behavioral shifts, which offer significant benefits to individuals by enhancing their self-perception and internal capabilities. This improvement leads to more effective and mindful communication, as well as improved work methodologies, signalling a constructive transformation.

Conclusion: The study provides valuable insights into training methodologies that foster the ongoing development of essential skills and competencies, benefiting both participants and the wider community. Post-pandemic, this module is particularly useful as it enhances interpersonal communication, self-efficacy, and personal skills, helping individuals navigate the challenges of a changed world. Despite limitations, the study highlights the value of tailored training programs that prioritize practical application and address individual learner needs, suggesting future enhancements through increased sample sizes and objective measures for sustained skill development.

Keywords: university-industry collaboration, knowledge-transfer program, competency-based, neurolinguistic program, personal development

4. PB-004

Understanding UUM Students' Perception of Public Bus Usage Using the Theory of Planned Behaviour

Yap Kah Yee, Abdul Kafi, Nizamuddin Zainuddin

Public buses are among the most cost-effective and environmentally friendly modes of transport. However, Malaysians, including students, often hold negative attitudes towards public transport due to unreliable arrival times, limited comfort, and a lack of perceived safety when traveling alone. Promoting public bus use requires understanding the factors influencing passenger choices. This study investigates the factors affecting Universiti Utara Malaysia (UUM) students' intentions to use public buses through the lens of the Theory of Planned Behavior (TPB). A quantitative approach was employed, surveying 409 UUM students through a questionnaire. Data analysis using multiple regression revealed significant positive relationships between students' attitudes, subjective norms, perceived behavioral control, and their intention to use public buses. Students with more positive attitudes towards public transport, stronger beliefs that those around them approve of bus use, and a greater sense of control over their bus travel experience were more likely to intend using public buses. This research contributes theoretically to understanding university students' perceptions of public bus use, specifically focusing on UUM students. The findings provide valuable insights for researchers, policymakers, and public transport organizations, informing strategies to improve public bus services and increase ridership. Future

research could explore specific interventions targeting identified factors, such as improving infrastructure, enhancing perceived safety, and promoting awareness campaigns.

Keywords: *Attitude, Perceived Behavioural Control, Public Bus, Subjective Norms, TPB*

5. PB-005

Factors Influencing Road Accidents Among Young Drivers on the Universiti Utara Malaysia Campus

Rangganayagi Dewarajoo and Abdul Kafi

Road traffic accidents represent a significant global public health crisis, with young drivers constituting a particularly vulnerable group. This study aims to investigate the primary factors contributing to road accidents among young drivers on the Universiti Utara Malaysia Campus, focusing on behavior, environmental, and vehicle factors. A quantitative analysis was conducted using a questionnaire survey among young drivers through purposive sampling. The data was analyzed using multiple regression analysis to identify significant predictors of road accidents. The regression analysis revealed a strong relationship between young driver accidents and three key factors: driver behavior (β = 0.759), environmental conditions (β = 0.822), and vehicle risk (β = 0.659). These findings suggest potential interventions like driver training programs, infrastructure improvements, and promoting safer vehicles for young drivers. Further research could delve deeper into specific factors within each category to develop more precise preventative measures. This study addresses a critical gap in existing research by identifying the key factors contributing to young driver accidents in Malaysia. By focusing on these factors, the Ministry of Transport (MOT), road policymakers, and the Road Transport Department of Malaysia can take significant measure to reduce road accidents. Future research could explore specific elements within each category to explore more precise preventative measures.

Keywords: *Road accident, young driver, behavioral factor, environmental factor, vehicle factors*

6. PB-006

Storytelling Origami-based: Enhancing Creativity and Interpersonal Skills in the 'Jati Diri' Course

Maisarah Kamal and Aisyah Hartini Jahidin

The “strawberry generation,” representing today's youth, is often observed to have deficiencies in interpersonal skills such as active listening, teamwork, responsibility, reliability, leadership, motivation, patience, and empathy. This highlights the need to foster self-development among young people by enhancing these interpersonal skills, including effective communication and collaboration, to better shape their future and enable them to contribute meaningfully to society. Interestingly, the Centre for Foundation Studies in Science at Universiti Malaya (PASUM) offers a mandatory 'Jati Diri' course in addition to science and mathematics courses. This course is conducted for 2 hours a week. In addition to delivering knowledge on course content, we also conduct activities that use a student- centered, interactive approach to develop soft skills related to each topic. One of the activities involves each group creating a short story using individual Japanese origami folds. The activity aims to integrate creative and interpersonal skills through hands- on experience. The focus on interpersonal skills includes communication, teamwork, and time management as students work within a set timeline. These skills were covered in the previous lecture. In the first 30 minutes, the instructor presents content on creative and critical thinking. Students then have 55 minutes to complete their origami folds and create their story. The remaining time is used for presentations (both face-to-face and online). Padlet is used to

upload written work or videos up to 3 minutes long for those not presenting physically. At the end of the session, the instructor provides feedback on the students' work. Students demonstrated effective teamwork, time management, and creative thinking. Most enjoyed the process, providing positive feedback via Padlet. We can conclude that this activity successfully enhanced students' soft skills (communication, critical and creative thinking, teamwork, time management) and indirectly improved their use of technology in creating videos and giving feedback. This offers valuable insights into making the 'Jati Diri' course module more dynamic and engaging in fostering students' self-awareness. Future studies could explore the impact of such activities on various student demographics, including differences in age, background, or field of study.

Keywords: *Jati Diri course, origami activity, creative problem-solving, student-centered approach, soft skills development.*

7. PB-007

Wisdom Applied: The Moderating Role of Workplace Envy in Succession Planning and Leadership

Muhammad Afnan Mahusain and Mohd Aliff Abdul Majid

This study explores the moderating effect of workplace envy on the relationship between internal environments, succession planning processes, and leadership qualities among upper- echelons in five-star hotels in Kuala Lumpur, Malaysia. The hotel industry, known for its reliance on skilled human capital, faces significant challenges related to high turnover, talent shortages, and service quality. This research seeks to address these challenges by exploring how workplace envy—a complex emotion characterized by feelings of resentment and hostility—affects the efficacy of succession planning and leadership qualities. Data were collected from 200 upper-echelon operational managers across 41 five-star hotels in Kuala Lumpur, with analysis performed using IBM SPSS 26.0 and SmartPLS 4.0 software. Descriptive statistics and structural equation modelling revealed that workplace envy significantly moderates the relationship between various succession planning factors—such as leadership talent, social identity, organizational culture, empowerment, workplace diversity, and talent management—and the effectiveness of succession planning. Specifically, high levels of workplace envy weaken these positive relationships, as shown by a 4% increase in explained variance when the interaction term was included in the model. The analysis showed that high levels of workplace envy weakened the positive relationship between leadership talent (β = -0.061, t = 1.030, p > 0.01) and social identity (β = -0.073, t = 1.128, p > 0.01) with succession planning. Workplace envy also negatively affected the link between organizational culture and succession planning (β = -0.120, t = 1.299, p < 0.01). Conversely, workplace envy enhanced productive behaviour among managers (β = 0.076, t = 1.156, p > 0.01). No significant moderation effects were found for workplace diversity (β = - 0.121, t = 1.075, p > 0.01) and talent management (β = 0.071, t = 0.688, p > 0.01). The study finds that workplace envy can both impede succession planning and leadership and motivate self-improvement. While it often negatively impacts organizational effectiveness, it can also drive enhanced performance. Effective management strategies are needed to balance these effects, leveraging envy's potential for positive outcomes while mitigating its drawbacks. This research highlights the need for strategic handling of envy to optimize succession planning.

Keywords: *workplace envy, succession planning, leadership qualities, upper-echelons, hotel industry*

8. **PB-008**

Exploring the Role of Mother Tongue Education in Shaping Year Five Pupils' Mental Models of the Environment and Their Pro-Environmental Behaviours

Selvajothi Ramalingam and Kavitha Maslamany

Pupils are given fewer opportunities to discover the natural world around them. This has resulted in 'nature deficit disorder' among pupils, especially those living in urban areas surrounded by built environments. This issue is exacerbated when pupils receive limited exposure to environmental education in schools, where they learn environmental concepts as disconnected pieces of information. Pupils who cannot comprehend the environment as a complex and interconnected system will have less awareness of environmental problems. This comprehension is significantly affected by the medium of instruction. Learning science in a language other than their mother tongue can increase cognitive load, causing students to struggle to understand the concepts due to language barriers. Therefore, this study investigates the comparison of Year Five pupils' mental models of the environment between mother tongue-based education (MTBE) and non-mother tongue-based education (non-MTBE) and their relationships with perceived pro-environmental behaviours. A descriptive survey research design was employed in this study. The sample comprised 60 Year Five pupils (30 pupils from MTBE and 30 pupils from non-MTBE) from two schools in an urban area in Kuala Lumpur. Pupils' mental models of the environment were elicited using the Draw-an-Environment Test (DAET). Mental Model Factors and the Environmental Behaviour Questionnaire (MMFEB) were used to identify the factors that influenced the Year Five pupils' mental models and their perceived pro-environmental behaviours. Descriptive statistics, Pearson correlation, content analysis, and regression were used to analyse the data obtained through MMFEB. The findings revealed that the level of environmental mental models of the pupils from MTBE is 80%, while non-MTBE pupils are at 60%. This indicates that MTBE learners performed slightly better than non-MTBE learners. Four types of mental models were identified among the pupils: Model 1 (a Perfect Environment), Model 2 (Interaction Between Human and Environment), Model 3 (Environmental Problems), and Model 4 (Solving Environmental Problems). The correlation findings further revealed that pupils with a higher level of mental models tended to demonstrate more positive pro-environmental behaviour. Additionally, the study found that factors such as school, experience, environmental problems, and socio-cultural factors influenced the level and types of pupils' mental models of the environment.

Keywords: Year Five pupils, mother tongue education, mental model of environment, pro-environmental behaviour

9. **PB-009**

Exploring Preferable Climate Futures for Tourism Development: A Local Host Perspective from Japan and Malaysia.

Husna Zainal Abidin1, N Alia Fahada W Ab Rahman and Aarni Tuomi C

Local stakeholders play a significant role in overcoming the climate crisis that is facing the tourism industry, particularly through the development of sustainable tourism destinations. Despite this, governments and policy makers often neglect key local stakeholders in their policy making. Older adults (people aged 60 years or older) constitute a significant per cent of the Japanese and Malaysian ageing population, bringing to the table their life-long experience, leadership and wisdom. This research focuses on the destination hosts' perspectives, focusing on a a cross-country comparison of older adults' views of the future sustainable development of their destinations. The aim of the ongoing project is to explore Japanese and Malaysian local older adults' visions of the future, with specific emphasis on better understanding how to mitigate the

impacts of climate change through sustainable revitalization of rural tourism destinations. The project adopts a preferable futures approach, utilizing a qualitative survey to explore older adults' views on preferable tourism futures. Purposive sampling is used to specifically target participants over 60 years old in non-metropolitan destinations. Overall, this research is timely and significant, providing both theoretical and practical contributions within the domain of sustainable tourism destinations and climate crisis mitigation. By incorporating the perspectives of older adults, this research hopes to underscore the importance of inclusive policymaking that leverages the wisdom of all stakeholders to create sustainable and resilient tourism destinations.

Keywords: *preferable futures, older adults, sustainable development, tourism*

10. PB-010

Understanding Gender Stereotypes in Shonen and Shojo Anime: Views of Malaysian Japanese Language Students

Sharifah Nurul Shahirah

This study explores the views of Malaysian Japanese learners on gender stereotypes in shonen (teenage boys) and shojo (teenage girls) anime. These media often depict males as a hero with assertive attitude while females as passive, an eye candy side character with their value often tie in with their male counterparts, potentially reinforcing harmful stereotypes and shaping societal views on gender. Japanese language learning is one of the growing foreign languages in Southeast Asia including Malaysia. However, previous studies tend to focus on learners' motivation, citing Japan media as the main factor to learn Japanese but neglecting how these media portray genders and, more so, understanding the learners' perspective on this issue. Although a local study has explored student perceptions on LGBTQ+ representation in anime and manga, a gap remains in understanding how gender stereotypes are viewed by diverse demographics such as Malaysian Japanese learners.

Therefore, for this study, a qualitative approach will be employed, utilizing open-ended survey and follow-up semi-structured interview. Participants will be Japanese language learners familiar with anime, selected for diversity in gender, ethnicity, and religious beliefs through purposive sampling. Thematic analysis will be used to analyse the patterns and themes will emerge to understand their views on gender stereotypes in anime, and also explore potential influences of religious and cultural backgrounds. Specifically, this study attempts to discover; whether Japanese learners recognise the gender stereotypes in anime, whether Malaysian anime fans' views on gender roles influenced by their upbringing, and, whether consumption of diverse range of manga and anime will influence their views on gender roles.

This research is expected to contribute to the intercultural communication field within language learning. It sheds light on the potential for anime as a window into Japanese culture while also potentially reinforcing or challenging pre-existing gender stereotypes. The findings significance will offer valuable insights for educators who incorporate Japan pop culture into their curriculum, allowing them to tailor discussions to address potential cultural clashes and promote critical thinking about gender roles.

Keywords: *gender Stereotypes, Japanese Learners, shonen Anime, and shojo Anime*

11. PB-011

Perspectives of Malaysian Mental Health Professionals on the usage of Non-erotic Touch in Therapy

Alicia Wong Shu Pei, Ng Suet Choon and Serena In

Touch is the most primitive ways of communication and care between human beings. Mother hugging a newborn with her hands touching the skin of the baby; the baby responds to the touch and recognises the skin of mother. This is the first human contact; the human bonding starts from this very single moment. As an individual grows up, touch such as hugging, handshakes, and patting on the shoulder becomes a sensitive and taboo topic in certain countries, cutting across differences of cultural practices. In this research, researchers focus on the in-depth understanding of the experiences and context that contributes to Malaysian mental health practitioners using touch in psychotherapy sessions. The objective of this qualitative phenomenological research is to understand the meaning of non-erotic touch for Malaysian mental health practitioners in Malaysia when providing therapy to adults. Researchers conducted the research with thematic analysis approach on 10 licensed counsellors who used touch in their practices. Purposive snowballing method was applied to gather the participants; member checking and other research procedures were applied to ensure the trustworthiness of research. In the finding, researchers found several emerging themes from the interview with participants such as touch is therapeutic, consent as a form of power, self-personal experiences. Even though touch has a therapeutic effect, it does come with risk and cautions, such as cultural and religious practices where the practitioners are base In conclusion, multicultural sensitivity plays a vital role in applying touch as part of the implication during therapy sessions.

Keywords: *touch, non-erotic, psychotherapy, Malaysia, psycho-therapeutic touch.*

12. PB-012

AI at AR the Crossroads: Unveiling the Role of Artificial Intelligence in Fostering Sustainable Consumption Practices

Muddasar Ghani Khwaja

The canvas of business operational endeavours have evolved substantially after the inception of artificial intelligence (AI). Alongside, augmented reality (AR) has further improved AI implementation in the organisational context. Moreover, sustainable consumption aspect has been considerably advocated globally, which has been a big drive in changing consumer buying behaviours. In this regard, the study focuses on how AI intelligent systems and AR can be used to boost sustainable consumption using social media platforms. The consumer engagement is anticipated to boost in sustainable consumption through social media involvement. The research was thus conducted using positivist doctrine using deductive method. Data was collected using judgemental sampling technique from social media users who have been using AI and AR features. Covariance based structural equation modelling (CB-SEM) was deployed for statistical analysis. The results supported theoretically knitted foundations.

Keywords: *Artificial Intelligence, Sustainable Consumption, Augmented Reality, Social Media Engagement*

Track 3: Law, Economy and Business

1. **PC-001**

   Management Accounting Practices and Operational Performance in Malaysian Hotel: The Antecedent Factors
   Salumah Nain, Nelson Lajuni and Rasid Mail

   Applying management accounting practices within the Malaysian hotel industry represents an area of significant interest that has hitherto received scant scholarly attention. This study aims to elucidate the determinants that precipitate the adoption of management accounting techniques and to ascertain their subsequent influence on the operational effectiveness of Malaysian hotels. In the post-COVID-19 era, technological innovations intensified market rivalry, and varying scales of hotel operations have accentuated the imperative for effective management accounting practices. Employing a quantitative methodology, this research surveyed a sample of 192 hotels selected via non-probability sampling, with data collected through both online and field-based questionnaires. The data was subjected to preliminary analysis using SPSS, and the research model was subsequently tested using SmartPLS 4.0. The findings reveal that market competition and technological advancements are pivotal factors in shaping the adoption of management accounting practices. Moreover, the study demonstrates that such practices positively impact key operational metrics within the Malaysian hotel sector, including the average daily rate (ADR) and revenue per available room (RevPAR). These insights are of considerable value to governmental bodies, industry stakeholders, and policymakers, as they can inform strategies to sustain the industry's competitiveness. Future research is encouraged to adopt alternative methodological approaches, such as cross-national comparative studies between Malaysia and Japan, to further expand the corpus of knowledge on management accounting practices in the hospitality sector.

   Keywords: Management accounting, hotel industry, operational performance, market competition, technology

2. **PC-002**

   Exploring Cross-Cultural Consumer Behavior and Marketing Strategies between Malaysia and Japan
   Thoo Ai Chin, Zuraidah Sulaiman and Huam Hon Tat

   This study aims to explore cross-cultural consumer behavior and marketing strategies through a collaborative research initiative between Malaysia and Japan. Both nations present unique cultural contexts and economic landscapes, offering a rich ground for comparative analysis. The primary objective is to investigate how cultural differences influence consumer preferences, purchasing behavior, and brand perceptions. By leveraging qualitative and quantitative research methods, this study will collect and analyze data from diverse consumer segments in both countries. The research will focus on identifying key factors that drive consumer decision-making processes, including cultural values, social norms, and economic conditions. Furthermore, it will examine the effectiveness of various marketing strategies in appealing to these distinct consumer bases. This collaboration will not only enhance academic understanding of cross-cultural marketing but also provide practical insights for businesses aiming to enter or expand in Malaysian and Japanese markets. The findings are expected to contribute significantly to the development of culturally sensitive marketing frameworks, facilitating more effective and targeted marketing efforts in diverse international markets. Through this collaborative endeavor, the study aspires to foster stronger academic and commercial ties between Malaysia and Japan, promoting mutual growth and understanding in the field of marketing.

Keywords: *Cross-Cultural Consumer Behavior, Marketing Strategies, Malaysia-Japan Collaboration, Consumer Preferences, Cultural Influence on Marketing*

3. **PC-003**

Bridging the Fast Fashion Brands in China via Spillover Effect and Ethnocentrism as Co-Branding Moderators

Fangyu Zhou, Zuraidah Sulaiman, Noraindah Abdullah Fahim, Nornajihah Nadia Hasbullah, Moniruzzaman Sarker

Fast fashion co-branding has become a mainstream trend in brand development, but there are still disputes regarding its entry into the Chinese market. This study examines the impact of fast fashion brand equity, as well as the role of spillover and ethnocentrism effects on consumer purchase intention of co-branded fast fashion in China. Current literature offers strategic guidelines for co-branding but lacks specific studies on fast fashion and the Chinese market. This study aims to fill this gap by guiding fast fashion brand strategies and investigating the influence of ethnocentrism among Chinese millennials and Generation Z. The study introduces a comprehensive framework integrating the Brand Equity Model, Spillover Effects Theory, and Consumer Ethnocentrism Theory. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), it explores the moderating roles of spillover effect and ethnocentrism in the relationship between co-brand equity match-up and Chinese consumer purchase intention. Purposive sampling targeted Generation Z and Millennial participants familiar with fast fashion co-branding and residing in China's first-tier cities. A total of 446 samples were collected through an online survey, revealing positive correlations among all factors. The results indicate that fast fashion co-brand brand equity positively impacts consumer purchase intention. The spillover and ethnocentrism moderate the relationship between co-brand equity match-up and purchase intention. These findings suggest that fashion industry practitioners must consider the success or failure caused by the brand equity match-up effect when implementing co-branding strategies. Additionally, the fast fashion industry needs to account for ethnocentrism when entering the Chinese market. Future research should focus on fast fashion co-brands across different industry categories and patriotic sentiments. In conclusion, this study fills a significant research gap, providing valuable insights into the strategic implementation of fast fashion co-branding in the Chinese market, highlighting the importance of cultural and ethnocentric considerations.

Keywords: *Fast Fashion, Co-Branding, Spillover Effect, Ethnocentrism, Purchase Intention*

Track 4: Engineering, Manufacturing, and Construction

1. **PD-001**

Impact of Surface Roughness on Friction Factors in Galvanized Steel (GS) and Stainless Steel (SS) Circular Tubes

Pajvenpural Muthusamy, Abdulhafid M A Elfaghi

Surface roughness plays a critical role in determining friction factors in circular tubes, significantly influencing the efficiency and performance of fluid transport systems. This paper focuses on the impact of surface roughness on friction factors in galvanized steel (GS) and stainless steel (SS) circular tubes, highlighting the differences and implications for practical engineering use. By analysing these effects, the research aims to provide valuable insights for the optimization of material selection and design in fluid flow applications. The study simulates turbulent flow conditions within pipes of changing surface roughness, perfectly creating real-

world situations by determining precise parameters for pipe geometry, fluid characteristics, and boundary conditions. The research involves creating the complete 3D geometry of the tubes in ANSYS Workbench. Turbulence models and mesh refinement techniques provide precise visualizations of flow events and boundary layer effects. Results demonstrate a significant correlation between increased surface roughness and higher friction factors, with friction factors decreasing as Reynolds number increases. Specifically, galvanized steel exhibits an 8% higher friction factor compared to stainless steel due to its greater absolute roughness of 0.15 mm. The results show that smoother SS tubes give reduced flow resistance and improved efficiency. Validation against experimental data and proven correlations confirms the durability and reliability of the simulation models. The study emphasizes the significance of solving surface roughness in the design and optimization of pipe systems to improve energy efficiency and minimize pressure drops. These findings are crucial for enhancing fluid transport systems across wide-ranging industrial applications, providing an environment for further research on the impacts of surface roughness on different materials and flow conditions.

Keywords: *Turbulent flow, friction factor, surface roughness, Reynolds Number, Stainless Steel, Galvanized Steel*

2. PD-002

Enhanced Performance in Prosthetic Running Blades through Lattice Core Sandwich Design under Static Compression

Susharrman, Kreeshanthini Gobalan and S Kanna Subramaniyan

This study has explored the potential of developing and optimising a prosthetic running blade incorporating a lattice core sandwich structure design for lightweight and high-performance applications. Using SolidWorks, the prosthetic incorporates a lattice core construction that was designed to achieve strength and reduced weight. A 3-dimensional Computed Aided Design (CAD) model is subsequently exported to ANSYS Workbench. Finite Element Analysis (FEA) is then carried out to evaluate the structural integrity and performance under a load of 2400N, simulating the maximum force exerted by an 80kg athlete during running. Carbon fiber and titanium were selected for their superior mechanical properties, by ensuring minimal deformation at 26.47mm and a safety factor above 1. The FEA results has demonstrated that the prosthetic running blade can withstand the applied load, maintain low deformation, and ensure durability, meeting the necessary performance standards of the Europen Union Medical Device Regulation (EU MDR). The findings also highlighted that the achievement of a lightweight design through mass reduction by 63.54%, enhancing overall efficiency and adaptability, were proven critical for competitive sports performance. Additionally, the prosthetic running blade can be manufactured at a lower cost using 3D Printing Technology, offering enhanced customisable options for users. This cost-effective manufacturing process broadens the accessibility and personalisation of sports prosthetics. The successful application of a lattice core sandwich structure in the prosthetic running blade provides a lightweight and robust solution, opening new avenues for advancements in sports prosthetics. The implications of this study are profound, extending to improving the quality of life and athletic capabilities of individuals with lower limb amputations, offering them enhanced opportunities to participate in high-intensity sports activities.

Keywords: *Prosthetic Running Balde, Lattice Sandwich Structure, Finite Element Analysis, Lightweight Structure*

3. PD-003

3D-Printed Prosthetic Running Blades with Innovative Lattice Core Sandwich Structure Design

Kreeshanthini Gobalan, Susharrman and S Kanna Subramaniyan

Prosthetic technological advancements have significantly improved amputees' quality of life, especially in enabling participation in high-impact sports. This study is focuses on the design and fabrication of 3D-printed prosthetic running blades by incorporating lattice core sandwich structure design. The main goal is to enhance the mechanical characteristics of prosthetic blades to maximize durability and performance while reducing material consumption and production costs. The proposed procedure involved fabricating lattice core sandwich structures for the prosthetic blades utilizing rapid manufacturing techniques, notably Fused Deposition Modeling (FDM) of 3D printing. High-performance carbon fiber filaments like OBSIDIAN PA6+CF, CARBON PA12+CF, and eSUN ePA12-CF were identified as appropriate materials due to their superior mechanical properties. Furthermore, a PLA prototype was created to assess the lattice core sandwich structure's production potential using 3D printing technology, demonstrating high accuracy and validating the design process. Preliminary research indicated that the 3D-printed prosthetic blades with lattice core sandwich structures offer notable gains in weight reduction and mechanical strength. The novel lattice architecture has provided an improved energy return and impact absorption, which are crucial for athletic performance. Additionally, the transition from traditional production techniques such as lamination, moulding and machining to 3D printing resulted in a 50% decrease in costs, and the lattice core architecture is used less material to create a lightweight yet strong structure. By incorporating lattice core sandwich designs, significant mass reductions can also be achieved. The study has concluded that the performance and reliability of 3D-printed prosthetic running blades are greatly enhanced by integrating lattice core sandwich constructions by combining cutting-edge manufacturing technologies with innovative design techniques. Future research is aimed to focus on refining the lattice design for various sporting needs and exploring the use of other high-performance materials to further improve the functionality and comfort of prosthetic devices.

Keywords: *3D-printed prosthetics, Lattice core sandwich structure, Fused Deposition Modeling (FDM), Carbon fiber filaments, Athletic performance*

4. PD-004

Soft Skills Competencies of Quantity Surveying Graduates in Sarawak: Employers' Views and Expectations

Sing-Sing Wong and Irene Law

In 2022, 187,000 graduates were unemployed in Malaysia, notching 7.4% unemployment rate. The trend shows that graduates lack the soft skills that employers seek. It is vital to identify employers' expectations on competencies held by graduates. Employers are interested in graduates with various soft skills rather than technical abilities. The present study aimed to examine the soft skills competencies of Quantity Surveying graduates in Sarawak from employers' views and expectations. The present study adopted the quantitative method through questionnaire survey covering 33 Quantity Surveying consultant firms in Sarawak. The employers are required to assess their views on the soft skills performance of current Quantity Surveying graduates in Sarawak and indicate their expectations of soft skills competencies of Quantity Surveying graduates. The present study obtained a response rate of 48.5%. Descriptive analysis was integrated to analyse and interpret information from the returned questionnaires. Findings of the present study revealed that the employers were satisfied with the time management,

commitment, and positive attitude of Quantity Surveying graduates while the employers expected Quantity Surveying graduates could have good oral communication, commitment, and good written communication in the workplace. The present study provided a guideline framework for Quantity Surveying graduates employment and a significant implication for the Higher Education Institutes to align Quantity Surveying programme outcomes with the needs of construction industry.

Keywords: *Soft Skills Competencies, Quantity Surveying Graduates, Employers' Views, Employers' Expectations, Construction Industry*

5. **PD-005**

Advancing Drone Technology through Machine Learning and Differential Model-Based Control

Ismail Z. H.

This study presents a comprehensive approach to augmenting unmanned aerial vehicle (UAV) functionalities through the integration of machine learning (ML) and model-based control strategies, designed for operation in diverse environments. Our research implements a convolutional neural network (CNN) equipped with attention mechanisms to identify plant water stress accurately, a pivotal factor in precision agriculture. This innovative, lightweight model processes imaging data efficiently to detect early signs of stress, ensuring high accuracy with fewer parameters, which is critical for timely agricultural interventions. Additionally, we utilize predictive analytics to evaluate and categorize terrain stability, enabling UAVs to identify and select safe landing zones in potentially unstable or hazardous areas. This feature is particularly beneficial in disaster relief operations, where rapid and secure UAV deployment is essential for tasks such as battery swapping. Our findings indicate that these advanced capabilities can significantly improve the safety and efficiency of UAV operations in challenging environments. Moreover, we integrate an end-to-end reinforcement learning technique, specifically an actor-critic approach, with differential model-based control to enhance the precision and reliability of drone landings. This hybrid method allows drones to execute exact landings under challenging conditions, demonstrating substantial improvements in UAV landing technology. The integration of advanced ML techniques with robust control strategies offers a transformative potential for enhancing UAV functionalities across various sectors, indicating a significant leap forward in drone technology. This study sets a foundation for further exploration and development in the integration of intelligent systems in unmanned vehicles, highlighting their growing importance in modern technological applications.

Keywords: *UAV, Machine Learning, Model-Based Control, Convolutional Neural Networks, Drone Landing*

Track 5: Health and Medicine

1. **PE-001**

Tracking Heatstroke Condition: A Proteomics Multibiomarker Approach for Evaluating Potential Post-Heatstroke Complications

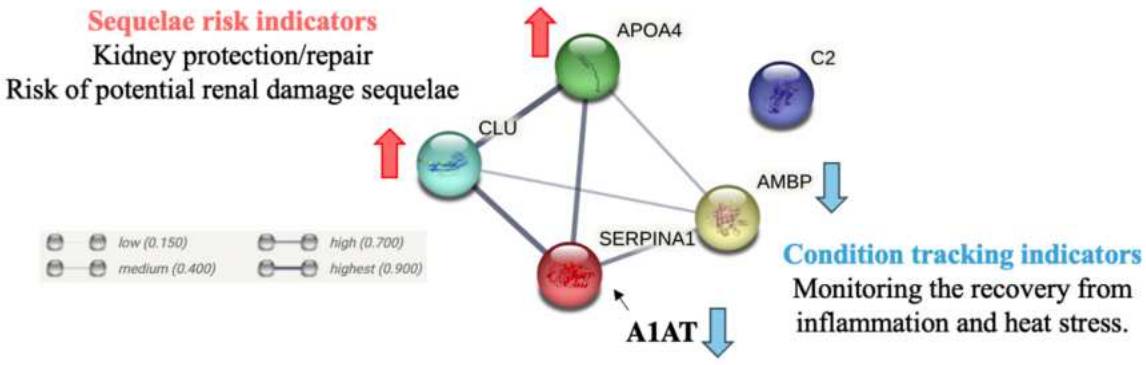
Jiayi Jin, Sing Ying Wang and Nobuhiro Hayashi

Global warming intensifies heatstroke, increasing its frequency and severity and threatening global health. Heatstroke can cause inflammatory and coagulation symptoms, progressing to multi-organ damage and irreversible central nervous system lesions if untreated. Approximately one-third of heatstroke cases result in acute kidney injury (AKI), leading to chronic renal damage

and high mortality rates. Current clinical approaches primarily focus on immediate symptom alleviation, with limited emphasis on post-heatstroke care to improve long-term outcomes for patients. Proteomics provides a robust method for exploring molecular features, enabling the identification of disease-related proteins at an early stage. However, extensive proteomics research on heatstroke is lacking. This study aimed to investigate heatstroke recovery using proteomics to identify potential early-stage biomarkers related to post-heatstroke complications.

Plasma samples from humans (n=6) and rats (n=10) were analyzed. Human samples were collected at heatstroke diagnosis and during recovery within a week. Rat samples were obtained under control (room temperature), mild (body temperature of 41.5°C), and severe heatstroke conditions (body temperature of 42.3°)C. Proteomics analysis involved sample pretreatment, two-dimensional gel electrophoresis (2-DE), statistical analysis, liquid chromatography-tandem mass spectrometry (LC-MS/MS) for protein identification, and validation via Western Blotting.

In the analysis of human samples, five proteins showed significant changes from diagnosis to recovery, including down-regulation of alpha-1-antitrypsin (A1AT) and alpha-1-microglobulin/ bikunin precursor (AMBP), and up-regulation of apolipoprotein A-IV (APOA4), complement component 2 (C2), and clusterin. Rat samples revealed 28 significant protein changes, and five of them were alpha-1-macroglobulin (A1m), albumin (Alb), phosphoglycerate mutase 1 (Pgam1), complement component 3 (C3), and 3b (C3b). These findings indicate the involvement of complement and coagulation cascades and cholesterol metabolism in heatstroke pathophysiology, particularly in renal damage onset. A1AT and AMBP could serve as inflammatory recovery indicators, while APOA4 and clusterin may assess renal impairment risk. This study's results offer potential blood biomarkers for assessing post-heatstroke severity progression, providing insights for early organ damage control and medication interventions.



Protein network by STRING of five significantly changed proteins during heatstroke and recovery in human samples. Four Western Blotting validated proteins were categorized into two groups as indicators for monitoring heatstroke conditions.

Keywords: *heatstroke, recovery, coagulation and complement cascade, antiinflammation, acute kidney injury*

2. **PE-002**

A Review of Knee Supports as a Potential Intervention for Fatigue and Knee Instability in Industrial Prolonged Standing Jobs

Elisha Claret

Industrial workers who stand for long periods of time are prone to overuse injuries, fatigue and knee pain. Knee supports may be beneficial, but there has not been as much research in the industrial context as there has been in sport and healthcare. This review considers the potential benefits of knee supports for industrial workers who suffer from fatigue and instability as a result of prolonged standing. This review includes literature on the biomechanics of the knee, the consequences of prolonged standing, and the use of knee braces in relevant settings. Prolonged standing reduces blood flow, causes muscle fatigue and increases strain on the knee joints. There are several types of knee braces available such as prophylactic knee braces, functional knee braces, unloader knee braces, patellofemoral knee braces, rehabilitative knee braces and knee sleeves, each with different functions and levels of support. Proprioception, stability and pain management in fatigued individuals may be improved by certain braces according to sports medicine studies. Although previous studies provide valuable perspectives, there is a significant gap in knowledge regarding the effectiveness of knee supports, particularly for industrial workers with prolonged standing. Larger sample sizes and well-designed trials are needed to evaluate different knee supports in this population.

Keywords: *knee braces, prolonged standing, fatigue, pain, instability*

3. **PE-003**

Exploring the Prevalence, Perception and Experience of Online Resources to Self-Diagnosis among Adults in the Klang Valley, Malaysia

Jin Hao Ma, Ammar bin Nurul Azwa, Josephine Chin Wey Ong, Nur Alia Yasmin binti Zakaria, Boon Yan Kua, Shuet Yee Chong , Wei Fern Siew

Self-diagnosis is becoming more common as the internet is gradually becoming a popular source for adults seeking health information online. The conceptual definition of self- diagnosis using online resources in this study refers to the act of an individual using internet- connected devices, such as computers or smartphones, to try to identify their medical conditions or health problems without seeking guidance from a qualified healthcare professional. To gain insight into these observable facts, there is a desire to ascertain the prevalence of adults in the area who utilise the Internet and Apps for self-diagnosis and to understand their perspectives regarding this practice. The prevalence, perception, and experience of utilising online resources for self-diagnosis among adults were surveyed in Klang Valley, Malaysia. An online Google survey was conducted from 4th to 10th October 2023, targeting the adult population residing in Klang Valley, Malaysia. Convenience sampling was used, and the survey link was shared with easily accessible contacts, i.e. to the students' WhatsApp chat groups. This approach allowed the fast recruitment of respondents within the time constraints of this study. Additionally, the association between sociodemographic and the experience encountered by those seeking online resources to aid self-diagnosis was examined. A total of 55.5% of respondents (n=238, N=429) have used online resources for self-diagnosis. Most of them (n=235, 98.7%) reported favourable experiences with information obtained online. However, they deem it unsafe and prefer consulting healthcare professionals for quicker symptom resolutions. While examining the sociodemographic factors, those aged 18-30, females, and of Chinese ethnicity self-diagnose using online resources more than the other groups, mostly via search engines. Our analysis of sociodemographic characteristics with experience of online self-diagnosis revealed that education level was the only

statistically significant factor (p=0.045). It is recommended that health education initiatives begin at the primary education level with an emphasis on reliable resources to seek information for medical conditions online. To date, there has been a lack of scholarly articles on self-diagnosis in Malaysia. Therefore, these preliminary research findings together with the validation of the questionnaire used can serve as a foundation for future comprehensive studies by local researchers.

Keywords: *health literacy, online resources, perception, prevalence, self-diagnosis*

4. PE-004

Isolation, Characterization, and Functionalization of Cellulose Nanocrystals Derived from Oil Palm Frond Fiber Incorporating Erythromycin and Tetracycline Hydrochloride

Moong Yan Leong, Yeo Lee Kong, Mohd Yusof Harun, Won Fen Wong, Chung Yeng Looi

Nanomaterials have proven effective against microbes due to their unique properties, but concerns about their recovery and toxicity persist. Agricultural waste, especially oil palm frond fiber (OPFF), offers a promising alternative. OPFF is rich in cellulose, which can be processed into cellulose nanocrystals (CNC). Utilizing OPFF not only mitigates environmental risks associated with synthetic nanomaterials but also converts agricultural waste into high-value products, enhancing sustainability. This study aims to assess the isolation and extraction yield of CNC from OPFF through oxalic acid hydrolysis method, investigate the functionalization of CNC into hydrogels with glutaraldehyde as a crosslinking agent, and evaluate their drug-carrying effects against Staphylococcus aureus and Pseudomonas aeruginosa. The findings indicate that oxalic acid hydrolysis yields a high amount of CNC with good purity. Additionally, the results show that crosslinking improves stability and drug-controlled release capabilities, creating opportunities for sustained delivery systems. Structural analysis via Atomic Force Microscopy (AFM) revealed distinct surface morphologies for CNCs extracted using this method. While CNC alone showed minimal antibacterial activity, its drug-holding capacity was greatly increased when it was functionalised into hydrogels. These results emphasize the potential of CNC as a strong reinforcing material to improve drug stability and targeting, aiding in the fight against resistant pathogens.

Keywords: *oil palm frond fiber (OPFF), cellulose nanocrystals (CNC), sustained delivery systems, antibiotic drugs, antimicrobial activities.*

5. PE-005

Evaluating the Efficacy of Multimodal Large Language Models in Diagnosing and Staging Diabetic Retinopathy: An External Validation Study

Chuin-Hen Liew, Nur Izzati Mohd Salim, Abdul Hadi Sharifudin, Sangeetha Subramaniam, Sin Yee Teo, Ee Xion Tan, Qi Zhe Ngoo, Saravanan Muthaiyah, Kalaiarasi Sonai Muthu

Introduction: Diabetic retinopathy (DR) is a major cause of visual impairment worldwide. In Malaysia, the single-field, fundus photography DR screening program faces challenges due to the scarcity of skilled personnel for image grading. This raises the question of whether artificial intelligence (AI) can aid in screening DR.

Research Objective: This research aims to externally validate the performance of open proprietary multimodal Large Language Models (LLMs) in the detection of DR, staging of DR, and detection of diabetic maculopathy. Additionally, the study also evaluates the errors of these LLMs.

Method: A retrospective quantitative external validation study was conducted using secondary data from the Tuanku Ampuan Najihah ophthalmology clinic encompassing both fundus images and demographic details from January 2018 to December 2023. The study included 250 patients, with fundus images tested by various LLMs — Open AI's GPT-4, Google's Gemini 1.5, Anthropic Claude 3 Haiku, and Mistral's Large model. Performance metrics such as the area under the receiver operating characteristic curve (AUROC), sensitivity, specificity, predictive values, and accuracy were assessed and validated with human ophthalmologist evaluations.

Results: More than half (53.5%) of the images had DR, with 82% of these cases being referable DR (patients with DR more than minimal stage). The GPT-4 model outperformed others in detecting DR, with an AUROC of 0.81, a sensitivity of 82%, and a positive predictive value (precision) of 82%. The GPT-4 performed best in classifying referable DR, with an AUROC of 0.80, a sensitivity of 80%, and a PPV of 76%. All LLMs poorly classify the exact stages of DR and the detection of maculopathy. GPT-4 had the highest failure rate (8%) in responding to text prompts, followed by Gemini 1.5 (3%) and Mistral Large (1%). GPT-4 also had the highest text re-prompting rate (13%) due to ambiguous answers, followed by Claude3 Haiku (9%).

Discussion and Conclusion: Our study validated that OpenAI GPT-4 is the best AI tool for detecting DR and classifying referable DR which fulfills the UK National Institute for Clinical Excellence (NICE) minimum criteria (sensitivity > 80%) for DR screening tools. The GPT-4 limitations in detailed staging and maculopathy detection highlight the need for cautious implementation.

Track 6: Cross-disciplinary and Other Emerging Areas

1. **PF-001**

Applying Knowledge through Managerial Coaching Skills: An Empirical Study of Employee Commitment

Nur Izzaty Mohamad, Ishak Abd Rahman

Managerial coaching has experienced a dramatic rise in popularity over the past decade, emerging as one of the fastest-growing performance-enhancing interventions in modern organizations. It serves as a vital approach that bridges the gap between an organization's leaders and their subordinates, fostering closer connections and enhancing overall performance. Research has consistently shown that managerial coaching skills significantly impacts employee commitment. However, despite its critical importance, the role of managerial coaching skills remains underexplored in leadership literature. This study aims to elucidate the relationship between managerial coaching skills and employee commitment emphasizing that wisdom is the application of knowledge in this context. A questionnaire was administered to 143 employees at Malaysian government agencies. The data were analysed using the SmartPLS program to evaluate measurement model quality, structural equation modeling and to test research hypothesis in this relationship. The results of the SmartPLS path model analysis reveal that managerial coaching skills significantly influences to employee commitment. The findings of this study offer valuable insights for practitioners, highlighting the complexity of managerial coaching skills and its potential to achieve and sustain organizational goals and strategies in an era characterized by globalization and the knowledge-based economy. By applying wisdom to the acquired knowledge of managerial coaching, leaders can more effectively navigate the intricate dynamics of their organizations and foster an environment conducive to continuous improvement and success.

Keywords: *Managerial coaching skills, employee commitment, leaders*

2. **PF-002**

Promoting Cross-Culture Engineering Education via Problem-Based Learning: UNIMAS-SIT experience

Noor Hisyam Noor Mohamed, Mohd Fadzli Ashari, Abang Mohamad Nizam Abang Kamaruddin, Mohd Syahmi Jamaluddin, Abang Mohamad Aizuddin bin Abang Mohamad Mohtar, Nobuo Watanabe, Shahrol Mohamaddan

In the dynamic landscape of engineering education, exposure to cross-cultural environment is increasingly recognized as pivotal for producing globally competent graduates. This abstract describes the collaborative initiative between University Malaysia Sarawak (UNIMAS) and Shibaura Institute of Technology (SIT) aimed at promoting cross-cultural engineering education between Malaysia and Japan. Since 2015, these institutions have jointly organized Global Problem Based Learning (GPBL) programs, facilitating immersive learning experiences for students from both countries. The GPBL initiative serves as a platform to intertwine engineering education with cultural immersion. Each year, a number of Japanese students from SIT have the opportunity to visit UNIMAS, located in Sarawak, enabling them to engage with local cultures and gain insights into regional engineering challenges. Conversely, UNIMAS students benefit from exposure to Japanese culture and engineering practices, thus broadening their global perspectives. The topics for the GPBL are discussed and decided with agreement of both parties, mainly to expose participants to regional issues or worldwide problems which involves brainstorming activities, designing process, and prototype fabrication using 3D printers. These activities are designed to equip participants with strong technical engineering skills and also global communication strength. This collaboration not only enhances technical skills but also cultivates cultural sensitivity and adaptability among participating students. By integrating problem-based learning methodologies, students tackle real-world engineering challenges in multicultural teams, fostering collaborative problem-solving abilities essential for the global workforce. Moreover, the exchange programs facilitate deeper cultural understanding, bridging academic and cultural divides between Malaysia and Japan.

Through feedback survey on 14 participants in year 2023, it was found that the transformative impact of the GPBL on UNIMAS students' academic and personal growth was significant, where students feel they are more equipped with problem solving skills, communication skills and manage to co-operate and team work with international students. It underscores the significance of international collaborations in enriching engineering education by preparing students to navigate diverse global environments and solve real life problems effectively.

Keywords: *engineering education, problem-based learning, cross-culture*

3. **PF-003**

Construction of Malay-Japanese Cross Language Information Retrieval (CLIR) Dictionary

Fazrina binti Said, Nurazzah binti Abdul Rahman, Shaiful Bakhtiar bin Rodzman

Cross Language Information Retrieval (CLIR) systems are pivotal in overcoming language barriers for effective information access. This article presents a Malay-Japanese CLIR dictionary designed to facilitate efficient retrieval of information across these languages, focused on the syllabus of Special Preparatory Program to Japan (RPKJ) at University Malaya. This study aims to assist non-native Japanese-speaking students, by developing a dictionary that corresponds to the program's syllabus, by retrieving relevant Japanese comprehension materials using Malay search query. The primary stages in this system are categorized into two phases, 1) Query

Translation and 2) Document Retrieval. Furthermore, the learning resources utilized are "Minna no Nihongo I" and "Minna no Nihongo II" along with a specialized vocabulary list. This system translates Malay words with three Japanese strings: Hiragana, Katakana, and Kanji, and different word types: a total of approximately 2000 nouns and verbs are used as well. Evaluation results demonstrate the effectiveness of the proposed CLIR dictionary in enhancing retrieval performance with average recall of 0.867 and average precision of 0.869 achieved on a test dataset of diverse queries and the prototype effectively managed translations in all three writing systems and effectively retrieved the suitable comprehension documents for the input queries either noun or verb. This shows that the approach is robust for different types of words within the controlled vocabulary. Future work aims to extend this framework to broader language combinations and domains to further enhance cross-cultural information access.

Keywords: *Cross-Language Information Retrieval (CLIR), Malay-Japanese CLIR, Query Translation, Information Retrieval*

4. PF-004

The Impact of Cocoa Pod Husk Compost on Soil Fertility, Rice Yield, and Starch Content in Rice Grains among Small-Scale Farmers in Malaysia: A Systematic Review

Muhammad Aniq bin Halim and Khoo Suan Phaik

This systematic review evaluates the impact of cocoa pod husk compost on soil fertility, rice yield, and starch content in rice grains among small-scale farmers in Malaysia, compared to traditional composting methods. The review synthesizes findings from multiple studies to provide a comprehensive understanding of the benefits and limitations associated with the use of cocoa pod husk compost in rice farming. A thorough literature search was conducted across databases such as Scopus, Google Scholar, and EbscoHost, using a predefined search strategy. Studies included in this review were selected based on their relevance to the research question, focusing on soil fertility parameters (e.g., soil pH, organic carbon, nutrient levels), rice yield (e.g., grain weight, number of panicles), and starch content in rice grains. The results indicate that the application of cocoa pod husk compost significantly enhances soil fertility by improving soil pH, increasing organic carbon content, and boosting essential nutrient levels such as nitrogen, phosphorus, and potassium. These improvements in soil health contribute to higher rice yields, with studies reporting increased grain weight and a greater number of panicles per plant when cocoa pod husk compost is used compared to traditional composting methods. Additionally, the starch content in rice grains was observed to be positively affected, with an increase in both the quantity and quality of starch. Economic analyses suggest that the use of cocoa pod husk compost is cost-effective for small-scale farmers, offering a sustainable alternative to traditional composting methods. The environmental benefits, such as reduced waste and enhanced soil health, further support the adoption of cocoa pod husk compost in rice farming. This review highlights the potential of cocoa pod husk compost to improve soil fertility, increase rice yield, and enhance the starch content in rice grains, providing valuable insights for rice eaters who are diabetics where the intake of starch content is crucial for glycaemic control. Future research should focus on long-term field trials and the development of best practice guidelines to optimize the use of cocoa pod husk compost in rice production.

Keywords: *Cocoa pod husk compost, soil fertility, rice yield, small-scale farmers, traditional composting methods.*

5. PF-005

Tech-Enhanced Stress Relief: A Flipped Learning Approach for Foundation Students

Aisyah Hartini Jahidin, Nik Fatin Nik Hashim, Fazrina Said, Maisarah Kamal, Nurul Nazifah Mat Noh , and Nor Zatul-Iffa Ismail

Today's youth is often seen as fragile and lacking resilience when it comes to managing stress and handling challenges. Their ability to overcome these challenges is crucial, as failure to do so can lead to increased stress and mental health issues. It is found that higher education institutions are increasingly adopting flipped learning. Previous study focusing on student perceptions of flipped learning and achievement in STEM subjects, particularly Mathematics. Although some studies examine the impact of flipped learning on assignment stress and academic performance, there remains a gap in implementation strategies for managing stress. Therefore, we used the web-based technology EDpuzzle to enhance stress management for foundation students on the topic of Stress and Overcoming Stress. In EDpuzzle, we created learning tasks based on two short videos that include important notes and quizzes. Students can also record their current emotions in a designated section. The entire online learning session does not exceed one hour. To complete the flipped learning pillars, we provide real-time individual feedback for the next class session. To evaluate student engagement and satisfaction with these approaches, and to determine whether their perceptions impact the effectiveness of stress relief, we used Google Forms to collect feedback from students. In evaluating the flipped learning approach, feedback shows that 87% of the 650 students were satisfied and found it effective for learning about stress. This high satisfaction rate highlights the method's effectiveness in engaging students and improving their learning experience. Talking and receiving support through non-judgmental listening also helped students feel calmer, more comfortable, and better equipped to manage their stress. It is found that these approaches successfully increased interaction, enjoyment, participation, and confidence among students. In conclusion, integrating technology enables educators to use their knowledge effectively to promote better understanding and enhance stress relief, ultimately improving overall learning outcomes. Future studies could examine the direct correlation between improved stress management through flipped learning and changes in academic performance, including assignment completion and exam results.

Keywords: *flipped learning, stress management, resilience, student engagement, technology integration*

6. PF-007

Keiretsu Revolution: Japanese Strategies to Supercharge Malaysian Businesses

Mughaneswari Sahadevan, Xinwei Shi and Jogeswari Ramamoorthy

This study explores the relevance of the Japanese keiretsu system to Malaysian business groups, focusing on similarities, differences, and potential lessons for Malaysian conglomerates. Keiretsu, a distinctive feature of Japan's business landscape, comprises networks of interconnected companies with cross-shareholding, coordinated by a core bank. This structure facilitates stability, risk-sharing, and resource pooling. Conversely, Malaysian business groups, often family-owned conglomerates, are characterized by centralized control, diversified portfolios, and hierarchical structures. By comparing these two models, the research aims to uncover strategic insights and governance practices that could enhance the competitiveness and sustainability of Malaysian business groups.

This research contributes to the academic understanding of business group structures and offers practical recommendations for Malaysian conglomerates seeking to enhance their governance and strategic management. Policymakers are also provided with insights to support the development of resilient and competitive business groups, fostering economic growth and stability in Malaysia.

Keywords: *keyword: Keiretsu, Malaysian business groups, corporate governance, inter-firm relationships, cross-shareholding, strategic management, economic cooperation, business networks, comparative analysis, organizational structure*

7. PF-008

Integrating Japanese-Style Engineering Education with Malaysian Cultural Distinctiveness: The MJIIT Experience at Universiti Teknologi Malaysia

Nurulakmar Abu Husain, Ali Selamat, Khairani Ibrahim, Pramila Tamunaidu, Farah Liana Mohd Redzuan, and Mohamad Fadzli Haniff

The integration of Japanese-style engineering education in Malaysia, tailored to incorporate Malaysian distinctiveness and culture, presents a distinctive educational paradigm through the Malaysia-Japan International Institute of Technology (MJIIT), Universiti Teknologi Malaysia. Established under Malaysia's Look East Policy, MJIIT combines Japan's precision, discipline, and technological expertise with Malaysia's rich cultural heritage and values. This initiative leverages Japanese educational principles, such as problem-solving, discipline, and teamwork, while embedding the unique cultural elements of Malaysia, resulting in a curriculum that emphasizes technical proficiency, innovation, multicultural competence, and local industry relevance. The poster emphasises the key features of this blended approach, which includes the incorporation of the Japanese senpai-kohai (mentor-mentee) system, fostering strong relationships and peer support among students. Additionally, the philosophy of Kaizen, or continuous improvement, is ingrained in the educational framework, encouraging students to perpetually seek enhancements in their work and learning processes. This cultural and educational synergy is further enriched by internship opportunities in Japan, providing students with practical experience in a global engineering context and exposure to advanced technological environments. The success of this educational model is evidenced by MJIIT's impressive graduate employability rate of 100%, indicating the high demand for its graduates in the job market. This achievement underscores the effectiveness of integrating Japanese engineering principles with Malaysian cultural values in producing well-rounded engineers who are ready to contribute to the nation's sustainable development and global competitiveness. This fusion not only enhances the educational experience but also prepares graduates to thrive in a globalized engineering landscape, reflecting the aspirations of the Look East Policy in a modern educational context. MJIIT serves as a model institution for this innovative educational approach, demonstrating the benefits of cross-cultural collaboration in engineering education.

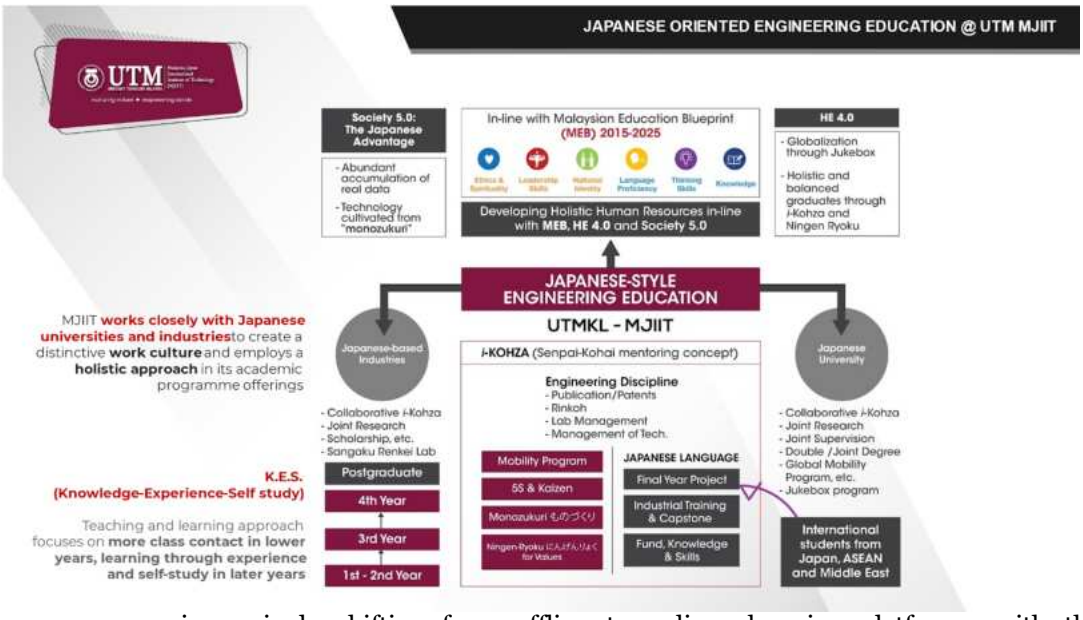
Keywords: *Japanese-style engineering education*

Pictorial Summary of Key Findings:

8. PF-009

The Influence of Mobile Augmented Reality (MAR) Features on Consumers' Immersion, Choice Confidence, and Purchase Intention of Cosmetics

Mehwish Panezai, Zuraidah Sulaiman, Muddasar Ghani Khwaja, Amir Zaib Abbasi, Thoo Ai Chin



Consumers are increasingly shifting from offline to online shopping platforms, with the introduction of immersive technologies enhancing this transition. This conceptual paper examines the effect of Mobile Augmented Reality (MAR) features on purchase intentions in Malaysia's cosmetic industry. Choice confidence is introduced as a factor positively impacting purchase intention. The study estimates the sequential mediation effects of immersion and choice confidence between AR features and purchase intention. A deductive approach is used, with a purposive sampling technique. Data will be collected via surveys in the digital lab from Malaysian males and females who use the "Shopee Skincam" application on mobile devices. Model estimation will be performed using Partial Least Square Structural Equation Modelling (PLS-SEM). The study contributes to theory by incorporating choice confidence as a mediator between immersion and purchase intention using the Stimulus-Organism-Response (SOR) model. It aims to enrich the literature on MAR apps in retail and understand the antecedents and drivers of purchase intention within the cosmetic industry. The findings will offer practical guidelines for understanding consumer behaviour in a mediated environment, given the rapid adoption of technology and e-commerce in Malaysia. This research provides valuable insights into how MAR features influence consumer purchase intentions, highlighting the importance of choice confidence and immersion. In practice, this understanding will help businesses develop effective marketing strategies leveraging immersive technologies to enhance consumer engagement and drive sales. In conclusion, this conceptual paper illuminates the complex relationships between MAR features, immersion, choice confidence, and purchase intention, providing both theoretical and practical contributions to online marketing and consumer behaviour research.

Keywords: *Mobile Augmented Reality, Immersion, Choice Confidence, Cosmetics, Purchase Intention*

Oral Presentation

Track 1: Science and Technology

1. **SA-001**

The characterisation and potential of fermented banana peel (Musa acuminata) and its bacterial isolates in promoting oyster mushroom (Pleurotus ostreatus) growth

Nurul Solehah Mohd Zaini, Nurazlin Zainuddin, Mohd Syahlan Mohd Syukri and Muhamad Hafiz Abd Rahim

Utilizing waste from food products is a crucial pillar of sustainability. In tropical countries, bananas are widely used in various cuisines, generating substantial waste, particularly in the form of peels. Banana peels are known to harbor a rich reservoir of beneficial indigenous microorganisms (IMO) that promote crop growth, which can be further enhanced through fermentation. Applying this to a sustainable crop like mushrooms further amplifies the impact of the waste. In this study, banana peels were fermented with molasses for eight days to enrich the IMO in the substrate. The bacterial isolates were characterized via sequencing and microscopic identification. For application in crops, the isolates were standardized against known bacterial concentrations using the optical density (OD) method. The isolates were tested for antifungal activity against the mushroom pathogen Trichoderma sp., which was isolated and molecularly identified from contaminated mushrooms in the field, appearing as greenish-white growth in mushroom blocks. Subsequently, the inhibitory activity of consortia or single bacteria was measured in vitro against this pathogenic fungus. To measure their impact on mushroom growth, the bacteria were applied at two-week intervals, and mushroom growth was monitored. Results indicated that fermentation significantly increased the number of lactic acid bacteria (LAB) on day eight, with Liquorilactobacillus mali becoming the dominant bacteria, outgrowing other types. Consistent with previous studies, the OD of the standard bacterial concentration used for further analysis was 10^7 cfu/ml. The antifungal activity on Trichoderma sp. showed that Liquorilactobacillus mali, Leuconostoc mesenteroides, and Lactiplantibacillus plantarum had the highest antifungal capability in inhibiting Trichoderma sp. These bacterial isolates also significantly impacted mushroom growth, with the shortest time to first harvest (6-10 days) compared to the control treatment, which could take up to one month. Overall, the study demonstrates that fermenting banana peels with molasses enriches beneficial bacteria, which can effectively inhibit pathogenic fungi and enhance the growth of oyster mushrooms, demonstrating a sustainable approach to waste utilization.

Keywords: *Biofertilizer, sustainability, organic crops, lactic acid bacteria, mushroom*

2. **SA-002**

Integration of Local Large Language Models for Enhanced Indoor Air Quality Monitoring

Bhisma Nambiar, Thinagaran Perumal, Alfian Abd Halin and Amy Poh Ai Ling

This research introduces an innovative approach to indoor air quality monitoring by integrating a low-power microprocessor with a Local Large Language Model (LocalLLM). The system emphasizes real-time data analysis with updates every 3 minutes, referencing indoor air quality guidelines set by the World Health Organisation. A combination of low-power microprocessors and LocalLLMs is used to analyse indoor air quality data. Benchmarks were conducted on three state-of-the-art pre-trained models: TinyLlama-1.1B, Marx-3B, and LLama2 7B, particularly focusing on their efficiency in token generation and prompt processing on resource-constrained devices like the Raspberry Pi 4 4GB. Performance evaluations reveal a median processing time of

89.1 seconds for the edge device to analyse sensor data and generate outputs for the 1.1B model. The system's mean latency is 89.13 seconds with a standard deviation of 172.83 seconds, indicating wide variability. The minimum latency recorded is 39 seconds, and the 25th percentile latency is less than 57 seconds. The median latency is 67 seconds, suggesting a skew towards higher values due to outliers. The 75th percentile latency is less than 82 seconds, and the maximum latency is 2329 seconds. The most common response time (mode) is 68 seconds. This research highlights the potential of integrating LocalLLMs with low-power microprocessors for indoor air quality monitoring, particularly in resource-limited environments. The system provides a cost-effective and accessible solution, enhancing the ability to monitor air quality in various settings from homes to industrial spaces. By leveraging LocalLLMs, this approach represents a significant advancement in environmental monitoring technology, offering a scalable and efficient tool for real-time air quality analysis.

Keywords: *Indoor Air Quality, Local Large Language Models, Low-Power Microprocessors, Real-Time Data Analysis, Resource-Constrained Devices*

3. SA-003

Synthesis of Spent Tea for Laccase Immobilization

Efrain Harris Modoit, Mohd Syahlan Mohd Syukri and Nurul Solehah Mohd Zaini

This study aims to transform waste into wealth by adapting agro-industrial waste, specifically spent tea, as an insoluble carrier support for laccase immobilization. The porous structure, low cost, biodegradability, and ease of functionalization of spent tea make it a promising solution to address the issues with free laccase, such as low stability and rapid activity loss when applied for industrial use. Successful acid-base modification of spent tea was observed in this study using FTIR analysis where two new peaks (1631 and 1541 cm-1) were appeared and stretching of carboxylic acid group at 3500 to 300 cm-1. The study also investigates laccase immobilization on modified spent tea, manipulating the incubation period as a variable. It is revealed that the highest activity recovery of 35.97% was at 2 hr incubation period. Not only that, the FTIR analysis also confirmed the successful immobilization, with the presence of N-O-H functional groups. To reach the research objective of developing an economical and sustainable approach for using laccase in the industry a reusability study demonstrates the immobilized laccase's sustained enzymatic capability over five cycles. This highlights the stability of the immobilized laccase, making it a cost-effective solution for industrial applications.

Keywords: *spent tea, laccase, immobilization*

4. SA-004

Fish vaccines against vibriosis in malaysia: efficacy and challenges

Md Yasin Ina-Salwany, Aslah Mohamad, Mohamad Azzam-Sayuti, Muhammad Amir Danial Zahaludin, Mohd Zamri-Saad, Annas Salleh, Mohd Nor Norhariani, and Mohammad Noor Azmai Amal

Aquaculture is the fastest growing sector of agriculture and accounts for almost 50% of the worlds' food fish. Fish diseases, often caused by bacteria, viruses, fungi, parasites, or a combination of these pathogens, pose significant challenges to the aquaculture industry, particularly bacterial infections that lead to substantial economic losses. Disease such as warm-water vibriosis is commonly found in tropical marine fish and shellfish in the region. Treatment of antibiotic-resistant infections with existing antibiotics has become more challenging with the emergence of multidrug resistance in aquatic microorganisms. In tropical countries such as Indonesia, Thailand, Vietnam and Malaysia, several vaccines against warm water vibriosis have

been experimentally tested in marine fish with promising results. However, commercial and licensed fish vaccines against warm-water vibriosis in these regions are still limited. In Malaysian aquaculture, the use of vaccines is still in an early developing phase, with most efforts focused on creating ideal vaccines against bacterial infections, such as vibriosis. The present study gives a brief description of the prevalence of vibriosis in Malaysia and how present vaccines are developed and applied. Efficacy and limitations in fish vaccines development are also discussed.

Keywords: *aquaculture, vibriosis, aquatic pathogens, fish vaccination, antibiotic-resistant.*

5. SA-005

Bimetallic Palladium-Rhodium Nanoparticles on Molybdenum Disulfide Nanosheets as Efficient Electrocatalysts for Hydrogen Evolution Reaction

Mehran Sookhakian

Hydrogen has emerged as a promising and sustainable energy source with the potential to meet our energy demands while achieving net-zero carbon emissions. Among the remarkable developments of the twenty-first century, electrocatalytic water splitting, as an efficient method for green hydrogen (H_2) production stands out. Specific electrocatalysts are needed to improve the hydrogen evolution reactions (HER). The decrease in noble metal content presents an efficient approach to attain commercial, effective, and durable electrocatalysts for the hydrogen evolution reaction (HER) at a low fabrication cost. Nonetheless, achieving a proper balance between bimetallic loading ratios and HER performance remains challenging. In this study, a simple and environmentally friendly sonochemical method is employed to successfully synthesize bimetallic palladium-rhodium nanoparticles (Pd-Rh) with varying ratios, confined within molybdenum disulfide (MoS_2) nanosheets. Bimetallic Pd-Rh/MoS_2 composite with different ratios of Pd:Rh are synthesized by adjusting the feed ratio of Pd and Rh precursors (1:4, 1:1 and 4:1). The HER electrocatalytic activity of the bimetallic Pd1-Rh1/MoS_2 composite exhibits the lowest overpotential and a superior Tafel slope, closely rivaling the electrocatalytic activity of the commercial 20 wt% Pt/C. Furthermore, The bimetallic Pd1-Rh1/MoS_2 composite exhibits remarkable stability and durability, with almost negligible performance decay after 2000 cycles. These outstanding HER electrocatalytic properties of the bimetallic composite result from a higher number of active sites, a significantly larger electrochemically active surface area, reduced charge-transfer resistance, and a larger double-layer capacitance. These factors collectively facilitate faster adsorption and desorption of hydron on the surface of electrocatalyst.

Keywords: *Palladium, Rhodium, MoS_2, HER, Acidic Media.*

6. SA-006

An Insight into Bioflocculant Treatment for Metal-Contaminated Water: Evaluating Fish Behavioural and Histological Changes

Zufarzaana Zulkeflee, Shamini Rani Dehli Raja and Goh Jun Hao

Oreochromis niloticus x Oreochromis mossambicus, or red hybrid tilapia fish is the second most cultivated fish in the world due to its adaptability for fish farming, commercial viability, and reliable market values. Hence, the demand for it is high in Malaysia, yet concerns about heavy metal contamination, such as lead (II) nitrate ($Pb(NO_3)_2$) and copper (II) sulphate ($CuSO_4$), in aquaculture have been widely reported from sources such as untreated residential, agricultural, and industrial effluents. This study investigates the effects of lead (II) nitrate and copper (II) sulphate on red hybrid tilapia fish on its behavioral changes and gill histology, as well as the potential mitigating effects of bioflocculant produced by Bacillus subtilis UPMB10. A 72-hour toxicity tests were conducted exposing the tilapia fishes to the metals at varying concentrations

with and without bioflocculants Fish behavioural activities observed included loss of appetite, imbalance, mortality, and aggression. The results indicated that exposure to both ($Pb(NO_3)_2$) and $CuSO_4$ led to significant behavioral changes, such as erratic swimming, increased aggression, and appetite loss. Histological tests revealed that fish exposed to these pollutants had lamellae shortening and fusion in their gills, which was consistent with the observed stress behaviors. However, the addition of bioflocculants demonstrated promising results in minimizing these effects. Fish in tanks containing both metals and bioflocculants exhibited fewer severe behavioral changes and improved gill condition, implying that bioflocculants can reduce the harmful effects of heavy metals. Despite these hopeful results, some behavioral abnormalities were observed even with the bioflocculant alone, possibly due to the protein foam development in the fish tank, which altered oxygen levels. In conclusion, bioflocculants appear to help reduce the toxicity of ($Pb(NO_3)_2$) and $CuSO_4$ in red tilapia fish. Nonetheless, more research is needed to investigate their efficacy across diverse heavy metal contaminations and fish species. This study demonstrates how bioflocculants can increase aquaculture viability in the face of environmental pollution issues.

Keywords: *bioflocculants, fish behavior, gills histology, heavy metal, Oreochromis niloticus x Oreochromis mossambicus*

7. SA-007

Modulation of PPARγ, C/EBP, and UCP1 Gene Expression by Gac Aril Carotenoid-Rich Extract in High-Fat Diet-Fed Sprague Dawley Rats

Mohd Nazri Abdul Rahman, Amin Ismail, Azrina Azlan, Ahmad Fazli Abdul Aziz, Nor Hayati Muhammad

The study aimed to investigate the effect of Gac Aril Carotenoids Rich Extract (GACRE) supplementation on the expression of key adipogenic genes, including PPARγ, C/EBP, and UCP1, in white and brown adipose tissues (WAT and BAT) of high-fat diet-fed rats. The animals were sacrificed at the end of the study, and adipocytes were harvested for analysis. Real-time PCR was used to quantify the gene expression levels, with normalization to GAPDH. In WAT, the results showed that PPARγ expression was downregulated in the control group on a normal diet compared to high-fat diet-fed rats with and without GACRE supplementation. Conversely, C/EBP expression was higher in GACRE-treated groups, and UCP1 expression was elevated in high-fat diet-fed rats without GACRE supplementation. When comparing high-fat diet-fed rats treated with 50 mg or 200 mg GACRE per kg body weight, PPARγ and C/EBP genes were downregulated, while UCP1 expression was higher in the group receiving 200 mg GACRE. In BAT, PPARγ expression was downregulated in the control group on a normal diet compared to high-fat diet-fed rats with and without GACRE supplementation. C/EBP expression was higher in GACRE-treated groups, while UCP1 expression was lower in all high-fat diet-fed groups compared to the control. In the comparison of GACRE-treated groups, PPARγ and C/EBP genes showed downregulation, while UCP1 expression was significantly higher in the group receiving 200 mg GACRE. Furthermore, when comparing WAT and BAT in high-fat diet-fed rats, PPARγ and UCP1 expression levels were significantly higher in BAT, while C/EBP expression remained relatively constant. However, in the GACRE-treated group, the differences in PPARγ and UCP1 expression between WAT and BAT were less pronounced, while UCP1 was downregulated in BAT. These findings suggest that GACRE supplementation may modulate the expression of key adipogenic genes in both WAT and BAT of high-fat diet-fed rats. The observed changes in gene expression may have implications for the regulation of adipogenesis and thermogenesis, warranting further investigation into the potential benefits of GACRE in managing obesity and related metabolic disorders.

Keywords: *GACRE supplementation, Adipose tissue, Gene expression, PPARγ, C/EBP, UCP1*

8. SA-008

The Effects of Different Calcination Temperatures on Developed Mycogenic Zinc Oxide Nanoparticles with Antibacterial Activity against Freshwater Fish Pathogen Streptococcus Agalactiae and Aeromonas Hydrophila

Muhammad Salahudin Kheirel Anuar, Muhammad Farhan Nazarudin, Mohammad Noor Amal Azmai, Annas Salleh, Che Azurahanim Che Abdullah, Ina Salwany Md Yasin, Mohd Termizi Yusof

Zinc oxide nanoparticles (ZnO-NPs) has a diverse applications across multiple fields, especially in agriculture and biomedicine. The eco-friendly production method known as green synthesis presents a viable alternative to traditional physical and chemical approaches. The increasing significance of green synthesis for nanoparticle production stems from its cost-effectiveness, reduced use of harmful chemicals, and widespread antimicrobial efficacy. This study aimed to compare and characterize fungal-cell-free filtrates mediated mycogenic synthesis of ZnO-NPs and examine how the impact of calcination temperatures influence the structural properties, morphological and antibacterial activity. In this study, seven fungal isolates obtained from soil and capable of growth on potato dextrose agar (PDA) supplemented with 1 mM of $ZnSO_4 \cdot 7H_2O$ solution were initially screened for ZnO-NPs production based on yield performance. It was found that the Talaromyces purpureogenus isolate SD7 produced a high yield of ZnO-NPs. To investigate the effect of calcination temperatures, the mycogenic ZnO-NPs were calcined at different temperatures ranging from 450 °C to 650 °C and further characterized using various spectroscopic and imaging techniques. Characterization techniques using field emission scanning electron microscopy (FESEM), high resolution-transmission electron microscopy (HR- TEM) and X-ray diffraction (XRD) confirmed that the ZnO-NPs exhibited a flake-like structure with irregular size and hexagonal wurtzite structure. It was also confirmed that particle size increased with higher calcination temperatures. Furthermore, the antibacterial properties were significantly affected by the calcination temperatures against Streptococcus agalactiae and Aeromonas hydrophila, with S. agalactiae being more sensitive to ZnO-NPs. This study demonstrates the potential of green-synthesized mycogenic ZnO-NPs as a cost-effective and environmentally friendly alternative to traditional antibiotics in managing these freshwater fish pathogens.

Keywords: *Zinc oxide nanoparticles (ZnO-NPs), mycogenic synthesis, calcination temperatures, antibacterial properties, Nanotechnology.*

9. SA-009

Improvement Cell Viability of Lactobacillus Paracasei Cultivation as a Potential Probiotic Starter Culture through Optimization Growth Condition by Response Surface Methodology

Roznelly Jutih, Siti Nurbaya Oslan and Siti Nur Hazwani Oslan

The study investigates the suitability of Lactobacillus paracasei (L. paracasei) as a functional starter culture for probiotic drinks. With the growing interest in foods containing beneficial bacteria, there is a corresponding increase in the demand for lactic acid bacteria as starter cultures, especially in fermented dairy products. This research aimed to enhance the production of L. paracasei by optimizing growth conditions using response surface methodology (RSM). The study assessed the physicochemical properties of L. paracasei, the effects of bioreactor cultivation, and its antimicrobial properties. Central Composite Design (CCD) was employed to optimize fermentation parameters (temperature, initial pH, and inoculum size) to maximize cell viability. Results indicated that cell viability in low-fat milk (LFM), skim milk (SM), and full cream milk

(FCM) were 8.53 log10 CFU/mL, 8.90 log10 CFU/mL, and 8.70 log10 CFU/mL, respectively, with LFM being selected for further studies. Optimal conditions derived from the RSM study were 30.2˚C, initial pH of 6.18, and an inoculum size of 2%, achieving a cell viability of 9.21 log10 CFU/mL. Comparing optimized and unoptimized conditions, a 7.97% increase in cell viability was observed. Further, cultivation in a bioreactor using the optimal conditions improved the specific growth rate from 0.297 ± 0.0744 h^{-1} in shake flasks to 0.38 ± 0.432 h^{-1} in the bioreactor, resulting in a 27.94% increased. Antimicrobial activity was evaluated using the agar well diffusion method, which demonstrated that L. paracasei inhibited Escherichia coli and Pseudomonas aeruginosa. The findings suggest that L. paracasei cultivation can be significantly enhanced using low-fat milk medium, and the bacterium shows potential for producing secondary metabolites like bacteriocins, which can be used to combat foodborne pathogens. In conclusion, L. paracasei is a viable candidate for use in probiotic drinks, with optimized cultivation conditions leading to increased production efficiency and potential applications in food safety and preservation.

Keywords: *Lactobacillus paracasei, probiotic, response surface methodology, cell viability, secondary metabolites*

10. SA-010

Comparative Study on the Toxicity and Behavioural Impact of Ammonium Hydroxide on Juvenile Barramundi and Juvenile Orange Mud Crab

Mohamat-Yusuff F, Gopal M and Euzreen M E, Nur Amiera K.

This study aims to establish baseline data on the potential implications of mishandling ammonia, intended for use in electricity generation within the green energy sector, on tropical marine species. The impact of ammonia exposure was assessed on juvenile Orange Mud Crab (Scylla olivacea) and juvenile Barramundi (Lates calcarifer) over a 96-hour period. For S. olivacea, the focus was on identifying the median lethal concentration (LC50) of ammonia and examining its effects on behavior and morphological growth, specifically measuring carapace length, carapace width, and wet weight. A total of 50 crabs were exposed to five different ammonia concentrations, including a control (0 mg/L, 2.5 mg/L, 5 mg/L, 7.5 mg/L, and 10 mg/L). The LC50 for ammonia in S. olivacea was determined to be 6.995 mg/L, with significant morphometric changes observed, indicating impacts on growth. For L. calcarifer, the study examined gill histology and behavior. Forty-nine juvenile L. calcarifer fish were exposed to six different ammonia concentrations and a control (0 mg/L, 2 mg/L, 4 mg/L, 6 mg/L, 8 mg/L, 10 mg/L, and 12 mg/L). Behavioral responses included avoidance of ammonia on Days 1 and 2, with no reaction on Days 3 and 4, except in the 12 mg/L tank, where fish consistently reacted to the chemical. Mortality occurred in the 8 mg/L (10%) and 12 mg/L (70%) tanks by Day 4. Histological analysis revealed lamellar fusion and shortening in the gill filaments of all exposed L. calcarifer fish, with the most severe damage observed in the 12 mg/L concentration. The study concludes that juvenile S. olivacea and L. calcarifer exhibit a relatively high tolerance to ammonia exposure, although significant morphological and behavioral changes were noted at higher concentrations. However, given the findings on the potential effects of ammonia, its application in the green energy sector requires careful safety measures and a mitigation plan in case of leakage.

Keywords: *Ecotoxicology, marine pollution, marine ecosystem, freshwater ecosystem, marine biology*

11. SA-011

Beyond Filter Bubbles: Fostering Serendipity in Content-Based Recommender Systems

Nur Izyan Yasmin Saat, Shahrul Azman Mohd Noah and Masnizah Mohd

Recommender systems, particularly content-based (CB) recommendations, recommend items based on users' past interests or preferences. Such an approach of recommendation triggers the issue of over-specialization, which forms the phenomenon of homophily or filter bubbles. This phenomenon causes systems to recommend items that are too similar to those the users already know and that are not interesting. Serendipity refers to recommender systems' ability to suggest relevant and novel items to users, often in unexpected or surprising ways. It's about introducing users to items they might not have discovered on their own but are likely to find interesting or valuable. This research aims to address the issues of serendipity in CB recommendations by proposing and evaluating a few techniques, mainly based on the classic TF-IDF, the latent-Dirichlet allocation (LDA) topic modelling technique, and the knowledge graph (KG). During the experiment, the research uses the MovieLens dataset and the Movie Plot Synopses with Tags (MPST) dataset, which contains plot synopsis data. Using the latent Dirichlet allocation (LDA) technique, appropriate topics are generated from the plot synopsis text content and integrated into the knowledge graph along with other features. The proposed content-based recommender system performs the recommendation in a three-step process: content analysis, profile learning, and filtering. For the analysis of results, apart from the common precision and recall evaluation metrics, this research considers the serendipity metrics, which consider popular items, user favourites and items generated by a primitive recommender. A serendipity measure is used to gauge the serendipity level of items while maintaining relevance to the user. The results showed that using knowledge graphs can improve serendipitous recommendation performance compared to other models. The results indicate that representing users' preferences and interests in the form of interconnected graphs results in the ability of the system to uncover serendipitous items.

Keywords: *recommender systems, content-based recommendation, serendipity*

12. SA-012

Fabrication and Characterisation of Starch-Based Bioplastic from Expired Bread: Enhancing Sustainability and Performance

Rabuni M.F., Ooi D. Z., Bahrudin F. I., and Junaidi M. U. M.

Plastic usage has seen rapid growth globally, driven by its lightweight, durability, affordability, and longevity. However, the extensive production and use of petroleum-based plastics have raised considerable environmental concerns. Bioplastics, although promising as an alternative, currently face limitations in various applications due to inconsistencies in their properties and functionalities compared to industrial standards. Additionally, bioplastics generally come at a higher cost than their petroleum-based counterparts. This study aimed to tackle these challenges by developing starch-based bioplastic from economical expired bread to reduce manufacturing expenses, enhance bioplastic film properties through crosslinking for broader usability, and thoroughly characterise the resulting films. The laboratory work began with extracting starch from expired bread. Citric acid was then added to the starch solution to initiate crosslinking during the modification process. After heating, the starch underwent gelatinisation, with glycerol, gelatine, and acetic acid subsequently added. Finally, the bioplastic films were shaped using moulding and subsequently dried. All bioplastic films fabricated underwent systematic characterisation, indicating improvements in hydrophobicity, thermal stability, elongation at break, and tensile strength after crosslinking, while maintaining biodegradability. Optimal

parameters during starch modification process were identified as a 5% citric acid concentration and a heating temperature of 90 °C. Fourier Transform Infrared Spectroscopy (FTIR) analysis validated these findings, showing increased substitution and ester linkage formation within starch molecules. This successful use of expired bread highlights its potential in producing high-quality starch-based bioplastics, which could serve as a greener alternative to petroleum-based plastics.

Keywords: *Starch-based bioplastic; Crosslinking; Citric acid; Biodegradable film; Sustainable material*

13. SA-013

Development of Reactive Toughening of PVA/Chitosan Composite Beads for Water treatment

Ching Yern Chee, Lou Hui

Polyvinyl alcohol (PVA) has been extensively researched for cell and enzyme immobilization due to its affordability and non-toxicity towards microorganisms. This study explores the development of durable PVA composite beads, blended with varying compositions of chitosan (0.5% to 3%), for wastewater treatment applications. A chemical crosslinking method with glycerol and boric acid (H_3BO_3) was employed to enhance the mechanical strength and water resistance of the PVA/chitosan (CS) composite beads.

In the first stage, batch experiments determined the optimal PVA/CS ratio, while the second stage involved improving this ratio with crosslinking agents and conducting characterization studies. The study revealed that 1%wt and 2%wt chitosan reinforced PVA beads exhibited lower solubility rates and better mechanical performance, thus selected for further crosslinking studies. The concentration and duration of boric acid as a crosslinker were optimized, finding that increased crosslinker concentration directly enhanced the mechanical strength of the PVA/CS beads, peaking at a saturation point. Optimal mechanical properties were achieved after 60 minutes of immersion in the crosslinker solution.

X-ray diffraction (XRD) results indicated that the addition of chitosan reduced the crystallinity of the PVA/CS blend, attributed to the dominance of intermolecular hydrogen bonding. This contributed to improved mechanical strength and water resistance. The most stable beads in water were formed using a saturated boric acid solution, though all samples dissolved in pure water within one hour.

The optimal formula, identified as Cs-2-20-60, consists of 2%wt chitosan, 20g boric acid, 40g $CaCl_2$, and 500ml deionized water, immersed for 60 minutes. This formulation provided the highest mechanical strength and water resistance, making it suitable for long-term aeration in sewage treatment processes.

Keywords: *PVA, composite beads, boroc acids, water resistance*

14. SA-014

Collaborate to Innovate: The Future of Biosensor Technology Ecosystem

Iffah Izzati Zakaria, Mohamad Shukri Sirat and Ummirul Mukminin Kahar

The integration of biosensors in healthcare promises significant advancements in diagnosis, monitoring, and treatment, ultimately improving patient outcomes and the overall healthcare system. To drive this revolution, the National Institutes of Biotechnology Malaysia have introduced the Integrated Biosensor Innovation Platform (also known as Gen-Sense). This

platform aims to accelerate biosensor innovation by prioritizing resource accessibility and streamlining regulatory procedures in a unified framework.

In an era where precision medicine and rapid diagnostics are increasingly essential, the Gen-Sense initiative is crucial to advancing biosensors. With their unique advantages in specificity, sensitivity, and adaptability, biosensors meet the healthcare sector's need for quick, accurate, and cost-effective diagnostic tools for both communicable and non-communicable diseases. Through the Gen-Sense initiative, the lateral flow assay approach has been utilized to develop microbial biosensor-based disease detection kits, such as those for periodontal disease. By collaborating with clinical and industrial counterparts, Gen-Sense ensures the practical applicability and scalability of these innovations. Integrating microbial biosensors into clinical practice enables Malaysia to address healthcare challenges, from early disease detection to ongoing monitoring and management, particularly in resource-limited settings.

The Gen-Sense initiative has several key outputs. It contributes to building a robust biosensor infrastructure in Malaysia, supporting the country's vision of leading biotechnology and healthcare innovation. The platform also enhances human capacity by training researchers and healthcare professionals in the latest biosensor technologies. Additionally, it fosters a collaborative network that bridges gaps between academia, industry, and healthcare providers, facilitating idea exchange and accelerating the development and deployment of biosensor technology.

Keywords: *Biosensor, collaborative network, healthcare, rapid diagnostic, resource sharing*

15. SA-015

Supporting early years dyslexic children with mobile assistive technology: Exploring the implementation in Malaysia and Japan

Mariam Mohamad, Irwan Mahazir Ismail and Takajo Hideyuki

Dyslexia is the most common learning disability that affects one’s ability to read and write. Many interventions methods are currently in use, however more studies need to be done to determine which interventions work best. Not much have been explored in previous studies regarding the implementation of tactile letters as multisensory approach together with the mobile application. There is a gap in combining both intervention approach to support dyslexic children. Therefore, this research is intended to add value to the knowledge and discovery of the combination of tactile letters with mobile application in teaching alphabet to Malaysian dyslexic children and teaching hiragana and katakana to Japanese dyslexic children. A qualitative approach is selected because the aim is to provide a rich picture of the experience of all involved during the study; teachers, parents and the dyslexic children both in Malaysia and Japan. The output of the study is the establishment of the framework tailored for both countries which includes content, activity and assessment regarding the integration of mobile learning and tactile letters which could also be the guidance for the special needs’ education. It is envisaged that the study will address the issues of inequalities among the disabled people and parallel to the needs of Industrial Revolution 4.0 in integrating digital technologies.

Keywords: *dyslexia, tactile letters, mobile assistive technology, Malaysia, Japan*

16. SA-016

Mechanical Properties of Natural Rubber and Waste Tire Rubber Blend Based Magnetorheological Elastomer: Insights into Crosslink Density and Performance

Aizatul Nabilla Zakwan, Norhiwani Mohd Hapipi , Farazila Yusof and Saiful Amri Mazlan

Magnetorheological elastomers (MREs) are class of smart materials with the ability to reversibly change their mechanical properties in response to an applied magnetic field. MREs normally composed of elastomeric matrix like natural rubber (NR), imbedded with magnetic particles like carbonyl iron. Despite the superior mechanical properties of NR-based MREs, there is growing concern about the use of NR as a matrix material due to its non-biodegradability and lack of environmental friendliness, resulting in environmental issues associated with solid waste. Thus, to address the issue a sustainable MRE composite incorporating waste tire rubber (WTR) as a secondary component of the matrix are developed in this study. The aim is to investigate the changes in the mechanical properties of MRE-based NR with different loading of WTR. The stress-strain behavior and tensile properties were evaluated. The results show that the amount of WTR loading greatly influenced the tensile strength, tensile modulus (stiffness), and elongation at break. A higher WTR loading leads to a decrease in tensile strength and elongation at break, while enhancing the material's stiffness. The best mechanical properties were recorded by 5% of WTR in MRE composite. Moreover, a swelling test is conducted to investigate the swelling behavior of the MRE composite when immersed in toluene, as the swelling ratio is inversely related to the crosslink density. The test confirmed that with increasing loading of WTR, the crosslinking density calculated using the Flory- Rehner equation of the elastomeric matrix increases. The insights gained from this research on sustainable NR/WTR blend-based MREs pave the way for their promising future application in sensor devices that do not require extremely high tensile strengths but rather an optimal balance of flexibility and stiffness.

Keywords: *Magnetorheological elastomer, waste tire rubber, sustainable, stress-strain behaviour, swelling test, etc.*

17. SA-017

Combined Effect of Zinc Oxide and Chitosan Nanoparticles: Antibacterial, Molecular Docking and Wound Healing Analyses

Nur Syafiqah Farhanah Dzulkharnien, Rosiah Rohani, Noorhisham Tan Kofli, Noor Alicezah Mohd Kasim, Melonney Patrick and Suhaila Abdul Muid

Human skin is highly susceptible to injuries from routine activities such as accidents and illnesses, necessitating effective wound healing treatments. The wound healing process can be significantly prolonged due to bacterial infections such as S. aureus and P. aeruginosa. The introduction of nanoparticles (NPs) has shown a promising advancement the wound care management. This study explores the combined effect of greenly synthesized zinc oxide nanoparticles using Aloe Vulgarize leaf extract with chitosan nanoparticles (ZnO/AV-CS NPs) on antibacterial, molecular docking and wound healing. The chemical composition and morphology of the NPs were characterized using FTIR and FESEM, respectively. Comparative analyses were conducted with previously synthesized compounds, which is ZnO NPs/AV (probe) and TENA Zn Cream (commercial product). The study successfully synthesized ZnO/AV-CS NPs with spherical morphology, demonstrating the ability to inhibit MRSA and E. coli through disc diffusion method, evidenced by ZOI of 14.0 mm and 22.0 mm, respectively. Additionally, molecular docking highlighted the significant role of hydrogen bonds in bacterial growth inhibition. The NPs exhibited over 80% cell viability in HDF cells at a concentration of 40 μg/mL after 48 hours, as confirmed by cytotoxicity assays. In scratch assay, the ZnO/AV-CS NPs achieved a wound closure

rate of 73.9% in HDF cells, surpassing the performance of commercial product at 61.1% of wound healing. In conclusion, NPs demonstrate substantial potential as efficacious therapeutic agent in biomedical applications, particularly in the realm of wound care therapy.

Keywords: *Chitosan, Zinc oxide, Nanoparticles, Antibacterial, Wound healing*.

18. SA-018

Trichoderma yunnanense as a potential biocontrol agent of Fusarium wilt in banana

Nurul Shamsinah Mohd Suhaimi, Kausalyaa Kaliapan, Siti Najwa Zulkarnain, Wong Yun Dian and Yusmin Mohd-Yusuf

Plant diseases cause significant crop yield losses and economic damage worldwide, with Fusarium wilt, caused by Fusarium oxysporum f.sp. cubense, being particularly destructive to banana plants. Traditional agricultural practices rely heavily on chemical fertilizers and pesticides to combat this pathogen, leading to environmental pollution and adverse health effects. As a result, there is a growing need for sustainable alternatives like biological control methods, which offer environmentally safe and effective solutions to manage Fusarium wilt and other plant diseases caused by biotic factors. Trichoderma spp., for instance, have been extensively used in agriculture to suppress various pathogenic agents through multifaceted mechanisms such as antibiosis, mycoparasitism, induced resistance in host plants, and competition for nutrients and space. In light of the efficiency of the members of Trichoderma as biocontrol agents, this study aims to assess the biocontrol potential of Trichoderma yunnanense T23 strain against a phytopathogenic agent of Fusarium wilt of banana, Fusarium oxysporum f.sp. cubense Tropical Race 4 (FocTR4). The primary objective is to determine if T. yunnanense T23 can antagonize FocTR4, thereby reducing the expression level of virulence genes in Musa acuminata cv. 'Berangan' plants. Furthermore, in this research, the expression of Secreted in Xylem (SIX) genes released by the pathogen in 'Berangan' banana plants pre-treated with T23 and subsequently inoculated with FocTR4 was also examined. Based on the results of the antagonist potency test using in vitro dual culture technique, the T. yunnanese T23 strain managed to inhibit the growth of FocTR4 by 75% which indicated a strong inhibition. Additionally, the in vivo bioassay method demonstrated that the 'Berangan' banana plants which were pre-treated with T23 showed reduced disease scoring and severity compared to untreated plants. The gene expression analysis of the virulent SIX genes (SIX1i, SIX6, SIX8a, SIX9a) also revealed a lower expression pattern in banana plants pre-treated with T23 and subsequently inoculated with FocTR4 compared to plants directly inoculated with FocTR4. Hence, these findings provide significant insights into the potential of the T23 strain as a biocontrol agent against FocTR4- induced Fusarium wilt in bananas, thus offering a promising and eco-friendly alternative to traditional chemical treatments.

Keywords: *Banana, Fusarium wilt, Fusarium oxysporum f.sp. cubense (Foc), Trichoderma yunnanense, Secreted in Xylem (SIX) gene expression*

19. SA-019

Harnessing AI for Enhancing Educational Outcomes in Students with Mental Disability

Abdul Nasir, Mohd Hanafi Muhammad Sidik, Muhammad Hisyam Rosle and Muhammad Nur Farhan Saniman

The transformative potential of Artificial Intelligence (AI) in enhancing educational outcomes for students with mental disabilities, including Dyslexia, Autism, ADHD, and Down syndrome, has been extensively explored. The significance of AI in education and its role in personalizing

learning experiences to meet individual student needs has been highlighted. The current state of AI applications in education has been reviewed, identifying significant research gaps, such as ethical considerations, lack of teacher training, integration challenges, and the need for longitudinal studies to assess long-term impacts. Innovative AI solutions have been discussed, focusing on adaptive learning platforms and AI tools tailored for specific disabilities. These solutions include personalized learning systems, real-time feedback tools, and AI-driven assistive technologies, demonstrating their effectiveness through various case studies. The best AI methods have been evaluated through detailed case studies, showcasing successful applications of AI reading aids for Dyslexia, social interaction tools for Autism, real-time engagement tools for ADHD, and personalized learning pathways for Down syndrome. These tools provide customized support, enhance engagement, and improve educational outcomes. The importance of AI in personalizing education, supporting teachers, and promoting inclusivity has been emphasized. Future research directions have been identified, including expanding the scope of AI applications, fostering interdisciplinary collaborations, addressing ethical issues, developing AI literacy, conducting longitudinal studies, and exploring innovative pedagogies. The integration of AI in education promises to create more inclusive, effective, and responsive learning environments, ultimately improving educational outcomes for all students.

Keywords: *Artificial Intelligence in Education, Personalized Learning, Mental Disabilities, Adaptive Learning Platforms, Real-Time Feedback Tools*

20. SA-020

Pullulan Mediated Zinc Oxide Nanocatalysts for Efficient Photodegradation of Anionic and Cationic Dyes

Eleen Dayana Mohamed Isa, Kamyar Shameli, Nurfatehah Wahyuny Che Jusoh and Saidatul Sophia Sha'rani

Photocatalysis has emerged as a promising technique for treating and removing various pollutants in wastewater. Its popularity stems from its environmental friendliness, requiring only two main components: a photoactive catalyst such as zinc oxide and a light source. To maintain environmental friendliness, the green synthesis of zinc oxide is preferred. This study focused on producing zinc oxide nanocatalysts via green synthesis, using pullulan, a biopolymer, as the capping agent. The materials were produced through two fabrication techniquess: sol-gel and precipitation and the samples were characterized X-ray diffraction (XRD, Fourier-transform infrared spectroscopy (FTIR), transmission electron microscopy (TEM) and surface area and pore analysis The analyses indicated that zinc oxide nanocatalysts were successfully produced with high crystallinity, as evidenced by the narrow, high intensity XRD peaks that fit well with the wurtzite crystal structure. Morphological analyses showed that the materials were nanosized, with average particle sizes ranging from 26 to 60 nm. The performance of the synthesized samples in photocatalysis was evaluated through the photodegradation of anionic and cationic dyes, methyl orange and rhodamine B, respectively. The highest degradation percentage, 99%, was achieved for both dyes within 60 minutes. For methyl orange and rhodamine B, zinc oxide nanocatalyst produced via sol-gel and precipitation techniques showed better performance, respectively. These results show that green-synthesized zinc oxide nanocatalysts are highly effective at removing both anionic and cationic dyes, with preferences that can be tailored by adjusting the fabrication technique.

Keywords: *zinc oxide, pullulan, dyes, photocatalysis*

21. SA-021

Towards Efficient Healthcare Logistics: A Requirement Analysis of Medical Delivery Drone

Abdulwahab Funsho Atanda, Huong Yong Ting, DYW Tan, Abdulrauf U. Tosho

Unmanned aerial vehicles (UAVs) commonly known as drones have found adoption and integration into different sectors of human endeavours opening new frontiers in delivery systems. In the healthcare sector, drones are widely hyped as an emerging technology for effective and timely delivery of medicals to rural and hard-to-reach communities, especially during natural disasters such as floods and epidemics. The ability of drones to navigate difficult terrains, avoid traffic congestion, infrastructural limitations, and reduce environmental pollution resulting in timely and cost-effective delivery has promoted its wide adoption. Although, there have been several research efforts by logistic and drone companies such as UPS, DHL, Zipline, and Flirtey at implementing medical delivery via drones. However, most of the research focused on the delivery of medicals between hospitals, with less emphasis on direct delivery to patients' homes. Unlike regular deliveries, medicals such as medicines, blood, and vaccines need specific handling and environmental conditions, including controlled temperature, humidity, pressure, and protection from direct sunlight. This implies that medical delivery has distinct requirements compared to regular goods delivery. Therefore, this study aims to analyse the critical requirements and challenges associated with implementing drone-based medical delivery systems, emphasising the need for a systematic and comprehensive approach to optimise their deployment in healthcare. The analysis begins by identifying the essential requirements for a successful drone medical delivery system, including technical specifications, regulatory compliance, and infrastructure needs. The study further examines the challenges and barriers to the widespread adoption of drone medical deliveries, such as weather conditions, security concerns, and public acceptance. Moreover, the paper discusses the potential benefits of drone medical delivery systems, including reduced delivery times, improved access to remote areas, and enhanced overall efficiency of healthcare logistics. The detailed requirement analysis generated in this paper will be valuable to stakeholders, including healthcare providers, policymakers, and technology developers, regarding the critical factors necessary for the successful implementation of drone-based medical delivery systems. The findings highlight the transformative potential of drones in healthcare logistics and highlights the need for a collaborative and multidisciplinary approach to address the challenges and maximise the benefits of this emerging technology.

Keywords: *Drone medical delivery, healthcare logistics, requirement analysis, drone technology, remote healthcare*

22. SA-022

FAR1 and FAR2 Regulate the Expression Of Genes Associated with Lipid Metabolism in the Rice Blast Fungus Magnaporthe Oryzae

Mohd Termizi Yusof

The rice blast fungus, Magnaporthe oryzae, infects plant by developing a specialized structure known as the appressorium. These dome-shaped cells are able to generate enormous internal pressure, which enables penetration of rice tissue by invasive hyphae. Various studies have shown that mobilisation of lipid bodies and subsequent lipid metabolism are essential prerequisites for successful appressorium-mediated plant infection, which requires autophagic recycling of the contents of germinated spores and germ tubes to the developing appressorium. Here, we set out to identify putative regulators of lipid metabolism in the rice blast fungus, FAR1 and FAR2. We generated Δfar1, Δfar2 and Δfar1Δfar2 double mutants in M. oryzae and show that these deletion

mutants are deficient in growth on long chain fatty acids. In addition, Δfar2 mutants are also unable to grow on acetate. FAR1 and FAR2 are necessary for differential expression of genes involved in fatty acid β-oxidation, acetyl-CoA translocation, peroxisomal biogenesis, and the glyoxylate cycle in response to the presence of lipids. Interestingly, Δfar1, Δfar2 and Δfar1Δfar2 mutants show no observable delay or reduction in lipid body mobilisation and plant infection, suggesting that these transcriptional regulators control lipid substrate utilization by the fungus but not the mobilisation of intracellular lipid reserves during infection-related morphogenesis.

Keywords: *Agriculture, Rice blast, Magnaporthe oryzae, Lipid metabolism, Transcriptional regulators.*

23. SA-023

The Influence of Social Media on Social Interaction Patterns among Students in Higher Educational Institutions (HEIs) in Alamesra

Charisthy All Modumis, Avilla Palajuman, Elviana Danniel, Inlo Ansim, Mohammad Aniq bin Amdan

Social media nowadays has a significant impact on its influence on society, especially among university students. With an easy access to social platforms such as Facebook, Instagram, Twitter, and TikTok, students are now shifting their interaction style from physical to virtual. This phenomenon has indeed brought about changes in how they form friendships, share information, and conduct social relationship according to real-life societal patterns. While this phenomenon provides opportunities and supports collaborative learning, it can also pose challenges in direct social interaction. Therefore, it is important to examine the positive and negative effects of social media in the context of university students' social development. The methodology that has been used to conducted along with this research is the non-numerical data collected named qualitative method. The participants selected for this research were students from Universiti Malaysia Sabah (UMS), UNITAR International University and Universiti Teknologi Mara (UITM). According to the interview, some students experience difficulties in communication with almost the same impact due to the diversity of types of social media used coupled with the culture and language of the different students. The findings obtained through this research, the more types of social media used, the more impact on students' social development students. Overall, this communication issue needs to be taken seriously by institutions such as the Ministry of Multimedia, board members, and management of higher education institutions, especially among Higher Education Institutions (HEIs) students.

Keywords: *Social Media, HEIs, Students*

24. SA-024

Superhydrophobic Transparent Coating with Self-Cleaning Properties for Next-Generation Smart Photovoltaic Panels

Khishn Kumar Kandiah, A. Syafiq, B. Vengadaesvaran, S. Ramesh, and K. Ramesh

Solar energy is one of the most promising renewable energies because it is clean, unlimited, and environmentally friendly. The performance of solar PV panels highly relies on the intensity of solar radiation. The accumulation of dirt and dust particles on PV panels will block the sun's light energy from reaching the solar cell. This dust accumulation issue is a major contributor to the PV panel efficiency issue. To overcome this issue, researchers developed an innovation called superhydrophobic or self-cleaning coating inspired by the properties of the lotus leaf. In this study, a transparent hydrophobic self-cleaning coating with modified Polydimethylsiloxane (PDMS) has been successfully developed using 3- aminopropyltriethoxyslane (APTES). The

coating system has been developed using a low- cost nano-calcium carbonate (CaCO 3) via a simple low-cost process. The hydrophobic coating developed is applied onto glass plates using the dip-coating method. Prepared samples were tested by X-ray Diffraction (XRD), Scanning electron microscopy (SEM), energy-dispersive X-ray (EDX), and Fourier Transform Infrared Spectroscopy (FTIR) to determine the crystalline phase, morphology, functional group, and emission characteristics. The coating systems are also tested using the water contact angle (WCA) method to determine their hydrophobicity level. Based on the WCA test, the coating system revealed that it is a hydrophobic coating which achieved up to 105.8°. Therefore, the prepared hybrid coating exhibits excellent self-cleaning properties in indoor and outdoor environments.

Keywords: *hydrophobic, self-cleaning, coating, calcium carbonate (CaCO 3), PDMS.*

25. SA-025

Obfuscated Malware Detection Using Memory Based Techniques
Nor Zakiah Gorment, Ali Selamat and Ondrej Krejcar

Obfuscation is the intentional act of making code opaque or difficult to comprehend, with the primary objective of concealing its real purpose from security measures and analysts. Thus, obfuscated malware poses a tough challenge to cybersecurity specialists since its ability to circumvent typical security measures and thwart reverse engineering attempts. One of the challenging issues in detecting malware is that modern stealthy obfuscated malware is a sophisticated type of malicious software that hides its actual goal and avoids detection by typical security systems. This form of malware uses a variety of obfuscation techniques to conceal its code, making it difficult for security researchers and antivirus technologies to detect its harmful activity. Understanding the complexities of obfuscated malware is critical for creating effective security measures to identify, analyse, and mitigate its effects on computer systems and networks. Inspired by those issues, this paper presents an efficient detection technique using memory feature extractors and machine learning classification techniques. Our main contribution in this research including presenting obfuscated malware analysis using three machine learning classification techniques including Decision Tree (DT), Logistic Regression (LR), and Support Vector Machine (SVM), comparing the existing malware analysis results with our analysis results, presenting memory-based feature extraction by focusing on obfuscated malware detection and employed the contemporary dataset CICMalMem-2022 for our research. According to the findings, the suggested method may identify malware that has been concealed and obfuscated utilizing memory features, with an accuracy and F1-Score of 99.9%. Furthermore, this paper highlights the crucial research activity to employ advanced detection techniques as the cyber security landscape evolves, constant research and collaboration are critical for staying ahead of obfuscated malware.

Keywords: *obfuscated malware, machine learning algorithm, malware detection, memory analysis*

26. SA-026

Colour-Based Ripeness Classification of Oil Palm Fresh Fruit Bunches Using Convolution Neural Network and Data Augmentation
Bakar, J.A., Kehail, M. A., Kassim, M. S. M., Saravanan, R., Wei-Cheng, Z. and Al- Marsoomi, A. G. D.

Proper ripeness categorization of oil palm fresh fruit bunches is crucial for harvesting them at the ideal stage to maximize oil output. The current manual method, which depends on harvesters visually inspecting the fruit's colour, is labour-intensive and susceptible to human error. This

highlights the need for an automated classification system that utilizes artificial intelligence to address these limitations. This study aims to evaluate the feasibility of using Convolutional Neural Networks to automate the grading of fresh fruit bunch ripeness based on colour. The objective is to develop and assess a model that can accurately classify the ripeness of fresh fruit bunches using artificial intelligence. A dataset of fresh fruit bunches was compiled from various sources and augmented using the TensorFlow data generator. The model was constructed using the TensorFlow library on Google Colab, employing a transfer learning approach with an Xception model. The model's performance was evaluated using accuracy and loss metrics, and a confusion matrix was generated to assess its classification effectiveness. The Convolutional Neural Network model achieved an overall accuracy of 80.4%. Visualization with activation maps confirmed that Convolutional Neural Networks can effectively classify the colour of fresh fruit bunches, demonstrating their potential viability for this task. The successful application of Convolutional Neural Networks for colour-based ripeness classification offers a promising alternative to manual methods, potentially reducing labour intensity and human error. This advancement could lead to more efficient and accurate ripeness assessment, ultimately enhancing oil palm harvests and improving overall productivity.

Keywords: *classification, deep learning, computer vision, pattern recognition, convolutional neural networks.*

27. SA-027

Microbubble detection in transformer oil by means of compressive digital holography

SH Norazman, EA Alias and MAH Ahmad Mahiri

Power transformers are crucial parts of electrical power distribution system. In wet type transformers, the temperature is regulated by using organic oil. Over time, the oil and materials inside the transformer can degraded, creating small, microscopic particles. Together with the increase of moisture, such particles can be hazardous as they can reduce the operational life of the transformer due to the decrease of dielectric strength of the insulator. The existence of microbubble in transformer oil caused by moisture vaporization is a sign of degrading transformer. Thus, detecting and quantifying the microbubbles is essential to prevent potential damage and ensure reliable transformer operation. In this study, compressive digital holography is utilized to capture the hologram of microbubble suspended in transformer oil. Then, by reconstructing the object using compressive sensing approach, the size and location of the microbubble can be determined. The experiment result conducted ex-situ demonstrates the potential of this technique in identifying microbubble in transformer oil, thus offering a promising solution for enhancing transformer reliability and safety.

Keywords: *digital holography, microbubble, transformer oil*

28. SA-028

Polyhydroxyalkanoates (PHA): A Biopolymer for a Greener and Sustainable Future

Manoj Lakshmanan

Plastics have become an integral part in our daily life. Almost everything that we use daily contains plastics in one way or other. While plastics seem to have robust applications to us, it also leaves a huge impact in our lives, adversely. With the increasing global population, the amount plastic consumption per capita has also significantly increased over the years causing various problems to humans, animals and the environment. It was reported that Malaysia tops the list as one of the countries with highest consumption of microplastics. Microplastics form by the

breakdown of macroplastics in the long term due to weathering effects, turning them into potent sizes which could seep through the human food chain discreetly. We at ZACROS/Fujimori Kogyo Co. Ltd. have taken this issue seriously and pledge to commit to develop new generation green materials in combating the plastic pollution issue. As a small step, we have successfully established a collaboration with Universiti Sains Malaysia which have championed the bioplastic related research for over 30 years and managed to bring out the technology from a laboratory scale to a pilot production test currently. Polyhydroxyalkanoates (PHAs) are an interesting class of biopolymers derived entirely from microbes by the assimilation of carbon substrates such as oils and sugars. This biopolymer is compostable and completely biodegradable in the soil and marine environments. It could also be produced using sustainable resources. We aim to explore the usage of PHA in various applications which can be useful to humans and the environment.

Keywords: *PHA, Biopolymers, Microbial polyesters*

29. SA-029

Smart Cities for Technological and Social Innovation

Nurul Hidayah Shabdin and Anusha Magendram and Raslan Ahmad

Creating smart cities through innovation is a reciprocal process. Innovation can lead to smart built environments, and smart cities, in turn, spur innovation. There are several effective evidences and documented examples of both technological initiatives and social innovation strategies around the world. However, there is a lack of understanding of how technology and social innovation might work together to address urban difficulties. In July 2021, Malaysia amended its Nationally Determined Contribution (NDC) to ensure carbon reduction can be mitigate using technology adoption and application in cities. This paper will elaborate adaptive capacity in Malaysian cities which is becoming more and more important, requiring timely innovation. At federal level, Ministry of Science, Technology and Innovation (MOSTI) has led one initiative called MySTI which aim to accelerate adoption as well as to promote local home-grown technology in Malaysia. As a national technology think tank, Malaysian Industry-Government Group for High Technology (MIGHT) capitalise on this enormous opportunity to advance the smart and sustainable city agenda. The technology and social innovation were manifested through the adoption of MySTI program and MIGHT linked government and industry through an integrated approach prioritises policy coherence, investment generation, and smart city indicators to bring transition in cities leveraging on Public-Private Partnership (PPP). At the same time, there are efforts at cities level to mainstreaming Nature-based Solutions (NbS) for carbon sequestration, resilience and health benefits, urban biodiversity conservation, and decarbonisation of the built environment, including promoting a circular economy in key sectors. Based on MIGHT's intervention at the federal, state and local level, this paper showcases how Malaysian cities can develop sustainably by promoting a comprehensive approach to urban development that considers the needs of both technology and social innovation.

Keywords: *smart cities, innovation, livability, sustainability, public-private partnership (PPP)*

30. SA-030

Unveiling Probiotic Potential: Lactic Acid Bacteria Isolated from Malaysian Fermented and Dairy Food Products

Shirley Gee Hoon Tang, Nur Aqila Syafiqa Salehhuddin and Hooi Chia Tang

Probiotics have been associated with numerous human health benefits. Fermented and dairy food products are identified as significant sources of these beneficial microorganisms. This study aimed to isolate the lactic acid bacteria (LAB) from Malaysian fermented and dairy food products,

and assess their probiotic traits and safety. Malaysian fermented (beancurd, 'belacan', tapay, 'taucu' and pickled fish) and dairy (sour cream and goat milk) food products were serially diluted and spread plated on De Man–Rogosa–Sharpe (MRS) medium. The isolated strains were phenotypically and biochemically characterized. Their probiotic (growth ability, antimicrobial activity, NaCl, pH, and temperature tolerances) and safety traits (antibiotic resistance and hemolytic activity) were assessed. Ten LAB strains were isolated from the samples. Among them, six (6/10) isolates displayed reproducibly robust growth and were preliminary selected for further investigation on their probiotic traits. The six isolates exhibited versatile carbohydrate metabolisms, including fructose, glucose, sucrose and maltose. They were catalase-negative, homofermentative, and classified as bacilli (four isolates) and cocci (two isolates). The findings showed that all six isolates were resistant to low acidity (pH 3-6), and highly tolerant to NaCl concentrations (2-8%) and temperature variations (4-37°C). They also showed antibacterial activity against Gram-positive and Gram-negative pathogenic bacteria. Safety assessment tests revealed that the six LAB strains were susceptible to the tested antibiotics (amoxicillin, ampicillin, chloramphenicol, penicillin and erythromycin) and exhibited γ-hemolytic activity. This study indicated that the six presumptive LAB strains isolated from Malaysian fermented and dairy food products displayed favourable in vitro probiotic traits. They could be regarded as promising candidates for further exploration, aiming at their potential for industrial uses that benefit human and animal health and well-being.

Keywords: *lactic acid bacteria, Malaysian fermented foods, dairy products, probiotic traits, safety*

Track 2: Social Sciences and Humanities

1. **SB-001**

Empowering the Competencies of Primary School Administrative Assistant Teachers (AAT) in Malaysia

Samad NORLIZA, Mohd Yusoff AZIYAH, Kuriaya KUNALAN

Administrative Assistant Teachers (AAT) in primary schools play an important role as middle leaders in managing and administrating the curriculum area, staff and are also responsible for leading teaching and learning activities in school. Their roles, functions and responsibilities must be clarified so that they can perform their duties efficiently. For that purpose, competency models are best used to guide the required knowledge, skills and values. However, research relating to the development of competency models for AAT especially in primary schools is considered new and has received less attention from scholars in Malaysia. Thus, this study aims to develop a competency model for AAT in primary school in Malaysia. The design of the study used a quantitative approach with the Fuzzy Delphi Method (FDM). A total of 26 experts were involved in this study. A questionnaire with a 7-point Likert scale is used as the research instrument. Data analysis showed that all FDM requirements were met with experts' consensus exceeding 75 percent, threshold value, d less than 0.2 and Fuzzy score value, α-cut exceeding 0.5. In conclusion, the final model consisted of four main constructs namely Self-Emotion, Governance, Leadership and Instructional. The findings also discovered that the resulting 57 competency elements fit the needs of AAT, which can also distinguished outstanding AAT in school. The implications of this study are significant for the Ministry of Education (MOE) Malaysia and can be utilized for the professional development of AATs through training modules or self-assessment of performance. As such, it can demonstrate the commitment and visionary of KPM in creating a competent and balanced cohort of future AATs according to the National Education Philosophy.

Keywords: *middle leaders, educational leadership, competence, competency model.*

2. **SB-002**

Malaysia-Japan Relations in Dominant Party Politics: Evaluating the Dynamics between the United Malays National Organisation (UMNO) and the Liberal Democratic Party (LDP)

Aaron Denison Deivasagayam

This notion of Malaysia-Japan relations has always centered around the Look East Policy (LEP) launched by 1981 and Look East Policy 2.0 (LEP) enhanced in 2013 under the leadership of Mahathir Mohamad and Najib Razak respectively. Through the utilisation of various sources of qualitative data, this article argues that dominant party politics has also played a significant influence in the development of Malaysia-Japan relations particularly through the direct and indirect dynamics that exist between the United Malays National Organisation (UMNO) and the Liberal Democratic Party (LDP). There has been evidence whereby UMNO members as well as lawmakers whom have acknowledge LDP as a model of dominant party that should be emulated especially in ensuring UMNO's dominance in the Malaysian political sphere. While UMNO seemed to have paid close attention to LDP's defeats in the 1993 and 2009 general elections in Japan by deriving political lessons, UMNO itself was not able to avoid defeat in the 2018 and 2022 general elections in Malaysia due to its failure in effectively implementing the political lessons learnt from the LDP. Nonetheless, UMNO has continued to reference LDP's resurgence as way of paving its own return and prominence in the Malaysian political arena. Through the utilisation of a qualitative. This article aims to contribute to the literature of Malaysia-Japan relations by moving away from the confined domain of LEP and LEP 2.0, which has been the primary area of research for a number of years now by observing relations between both countries from the perspective of dominant party politics.

Keywords: *Malaysia, Japan, UMNO, LDP, dominant party politics*

3. **SB-003**

Evaluating the Effectiveness and Impact of the Enhanced High-Performing Leader Programmes (EHPL) on Leadership Development within the Sarawak Civil Service, Malaysia

Sopian Bujang, Nadri Aetis Heromi Basmawi, Syahrul Nizam Junaini and Lee Jun Choi

This study provides a detailed evaluation of the Enhanced High-Performing Leader Programmes (EHPL) within the Sarawak Civil Service (SCS). Launched in 2020, EHPL is designed to cultivate advanced leadership skills, foster continuous improvement, and enhance organizational performance. The research delineates the programme's objectives, participant demographics, and the robust assessment methodologies employed. Employing a mixed-method approach, the study integrates qualitative methods with quantitative tools to deliver a comprehensive analysis of EHPL's impact. The programme has successfully engaged 124 high-potential leaders, demonstrating early measurable improvements in leadership capabilities and organizational growth. Key findings include a 63.43% overall auditor assessment rating, with 64.7% for leadership programmes and 61.6% for functional programmes. Qualitative results highlight a preference for physical implementation, the need for local context integration, and recommendations for programme continuation. As the programme evolves, refining its delivery based on feedback and addressing workload concerns will be pivotal for maintaining high engagement and maximizing impact. This research underscores the strategic significance of EHPL in developing leaders adept at navigating post-COVID-19 challenges, thereby advancing towards a world-class civil service in Sarawak. It highlights the civil service's unwavering

commitment to professional development and organizational excellence, positioning EHPL as a cornerstone initiative for leadership enhancement and overall effectiveness.

Keywords: *training effectiveness, leadership development*

4. SB-004

Study Abroad and Re-entry Experience: A Malaysian Perspective
Magdalene Ang Chooi Hwa

The study abroad (SA) experience has been substantially researched. The SA research primarily examined the challenges of studying abroad, and the effects of international exposure on returnees' work and personal life. Relatively fewer studies explored the re-entry experience and challenges. The majority of the studies have also largely drawn from the experiences of returnees from developed countries. This paper contributes to the existing body of knowledge by documenting a developing country's perspective on SA, transition experience, and re-entry challenges among academics who studied abroad. Twenty academics in a Malaysian public university participated in the study's interviews. Thematic analysis of the data revealed that the benefits of SA were evident in regards to participants' individual work-related activities. The impact of SA experience, however, was perceived to be relatively less significant on higher (e.g., faculty, institutional and/or societal) levels. Additionally, the transition journey was reportedly bumpy with numerous re-entry challenges. Implications of the findings and directions for future research are discussed.

Keywords: *study abroad, transition, re-entry, higher education, Malaysia.*

5. SB-005

From Shibuya to Kuantan: Jujutsu Kaisen as a Lens into Cool Japan's Footprint in Malaysia
Hannah Jie Hui Kuah

This paper attempts to understand how Malaysians reacted to the representation it garnered in the anime series Jujutsu Kaisen as a window into Cool Japan in Southeast Asia. Nanami Kento, a beloved character in Jujutsu Kaisen, expressed his lifelong dream of settling in Kuantan, Malaysia in his last moments. This has sparked many Malaysian and international fans to pay their tribute to the fictional character after his passing in the series, both online and offline. The tribute went as far as having a Google Maps' landmark in Pantai Kempadang beach (though it is now removed), where it has been visited and reviewed many times by fans. The article utilizes media analysis and autoethnography to understand how Malaysians reacted to the mention of their country by posting fan-related content such as fanart, fanfiction, and forums in social media spaces such as Facebook, TikTok, Instagram, X, and Archive of Our Own (a fanfiction website). Through Nissim Kadosh Otmazgin's critique on soft power and public diplomacy, Cool Japan's influence in Malaysia will be analyzed in this paper. According to Otmazgin (2012), "soft power" is too vague a term to explain the impact Japan has on other countries. This is especially true for those they have colonized before in WWII, including Malaysia. In addition, Taku Tamaki (2019) notes that Japan is "not-Western and un-Asian", and that makes the country unique in their effort to globalize anime and manga to gain soft power. The conclusion drawn from this sensation addresses how Cool Japan has triumphantly managed to exert their influence to the extent where they impact the patriotism of members of another nation, cementing their power on the international stage. However, it also brings up the question as to how this cultural consumption differs from political and historical views, and whether the globalization of anime can truly erase the negative views of other countries towards Japan.

Keywords: *Cool Japan, soft power, public diplomacy, national identity, nation branding*

6. SB-006

The Effects of Socioeconomic Status on the Neural Signals of Error Monitoring and Depression

Perera HS, Salehuddin K and Khairudin R

Recent studies have revealed that individuals at risk of mood disorders, such as depression and anxiety, exhibit heightened neural responses to errors. This phenomenon has led to the possibility that a well-known neural correlate of error monitoring, the error-related negativity (ERN), could be used as a diagnostic tool for several psychopathological conditions. However, conflicting evidence regarding the links between psychopathology and the ERN suggests that this phenomenon is modulated by variables that are yet to be identified. Socioeconomic status (SES) could potentially play a role in modulating the relationship between the ERN and psychopathological disorders, given that SES is known to be associated with depression and anxiety. In the current study, we first tested whether SES was related to ERN amplitude. Second, we examined whether the relationship between the ERN and depression was explained by differences in SES. We measured the error-related negativity (ERN) from a sample of adult participants while controlling for their scores on a well-known depression inventory. Our sample included both people living under the poverty line and middle to higher income individuals from a large urban city in Malaysia. Results showed that SES (family income) correlated with variations in ERN amplitude. Specifically, we found that low-SES people had a larger ERN than wealthier individuals. In addition, we found that the relationship between depression and the ERN was fully accounted for by variations in SES. Overall, our results indicate that SES predicts the amplitude of neural responses to errors. Further, our findings indicate that the link between depression and the ERN may be the result of SES variations. Future research examining the links between psychopathology and error monitoring should control for SES differences, and caution is needed if they were to be used as a diagnostic tool, especially in low-income communities.

Keywords: *poverty, socioeconomic status, error-related negativity, Malaysia, EEG*

7. SB-007

Exploring intercultural competency in tourism curriculum development: The impact of Malaysian students in Japan

Yurika Shibamoto

The Japanese Ministry of Education (MEXT) highlights the importance of nurturing global-minded individuals who have intercultural competency, a particularly important skill in the tourism industry. Therefore, tourism education in tertiary institutions must ensure that graduates possess a good level of intercultural competency. Despite this, the current tourism education in Japan has not adequately considered intercultural competency in its curriculum development. This research aims to explore the development of a tourism curriculum that incorporates intercultural competency in Japanese higher education. This research will also explore the impact of the presence of Malaysian government scholarship students in the tourism program. This is an applied research conducted for the Global Program at the Faculty of Tourism, Wakayama University, Japan. This ongoing, unique English-medium undergraduate tourism program aims to cultivate global perspectives, robust academic abilities, and proficient communication skills through the formation of a collaborative learning community. Data were collected through longitudinal observations and interviews since 2017 and analyzed using thematic analysis. The study revealed that incorporating intercultural competency aspects in the tourism curriculum was

seen as a new and novel academic culture to students, particularly for those who were fully educated in Japan prior to entering university. Interestingly, the presence of Malaysian students who are adept at excelling in community-building, positively affected the learning journey of other students. This indicates that fostering solid academic culture at the undergraduate level within a diverse cultural setting contributes to the development of acquiring components of intercultural competency by students. Moreover, the implementation of a culturally responsive tourism education, in which international students could serve as role models for Japanese students, can advance educational equity to students from all cultural backgrounds, facilitate the inclusion of international students, and create a campus environment that reflects diverse values, in line with Japan's higher education policy.

Keywords: *intercultural competency, tourism education, curriculum development, higher education, culturally responsive education*

8. SB-008

The Role of Japanese Language Teachers in Bridging Malaysia and Japan through Culture and Education

Azalia Zaharuddin, Zoraida Mustafa

Sustainable education plays a crucial role in fostering global understanding and cooperation, particularly in language instruction, which facilitates diplomacy, trade, and mutual respect in our interconnected world. Japanese language instruction is widely available in Malaysian schools and institutions, reflecting an increasing number of learners and establishments. However, since 2012, the number of Japanese language teachers has steadily declined. According to the Survey on Japanese Language Education Abroad by The Japan Foundation in 2021, unlike its neighboring Southeast Asian countries, Malaysia did not manage to double its number of Japanese language teachers by 2018, highlighting a significant shortage. As the demand for Japanese language learning grows in Malaysia, the scarcity of qualified teachers jeopardizes educational standards and inhibits cultural exchange and economic collaboration. This research emphasizes the pivotal role of Japanese language teachers, not only in fostering language proficiency but also in deepening cultural understanding and facilitating meaningful connections with Japan. The study investigates the motivations and career choices of Japanese language teachers in Malaysia, focusing on factors such as their passion for Japanese culture, language proficiency, and career satisfaction. Using a mixed-methodology approach integrating the FIT-Choice scale with semi-structured interviews, the study identifies barriers such as inadequate policies, lack of support, and limited career advancement that hinder the recruitment and retention of Japanese language educators. Recognizing the fundamental role of language proficiency in effective diplomacy, addressing these challenges is crucial for promoting broader cultural understanding and enhancing economic partnerships between Malaysia and Japan.

Keywords: *Sustainable education, Japanese language teachers, language education.*

9. SB-009

Mindset Components of Food-Based Social Entrepreneurs: Towards Sustainable Local Food Security and Social Well-Being

Khairun Najihah Sabri, Siti Fatimah Mohamad, Ungku Fatimah Ungku Zainal Abidin, Hazrina Ghazali, Mass Hareeza Ali@Hamid

The social entrepreneurship field is expanding and can potentially support national socioeconomic development. It is recognised that social entrepreneurship is an innovative and successful approach to eradicating poverty and creating jobs. Social entrepreneurship activities

have been practised for a long time in developed countries and have starting gained popularity in developing countries. Given that food security is not only a problem in Malaysia but globally, it is important to study social entrepreneurs operating in the food industry. Food security is a priority under the United Nations Sustainable Development Goals. According to the Food and Agriculture Organisation of the United Nations, Malaysia generated 8.9% of its GDP from agriculture in 2022. In the Global Food Security Index 2022, the country ranks 41st out of 113 countries. Being successful in the corporate world requires a resilient mindset due to volatility. This research explored the mindset component of food-based social entrepreneurs in Malaysia. A qualitative study was employed on food-based social entrepreneurs and stakeholders from the Malaysian ministry, agency, and university related to social entrepreneurship. The data were analysed using thematic analysis using the Nvivo software, and the trustworthiness of the data was ensured. The results revealed nine mindset components of Malaysian food-based social entrepreneurs: grit, self-competence, selflessness, social impact, social capital, performance-oriented, risk taker, business acumen, and creative. The study extends the current understanding by identifying the fundamental mindset components of food-based social entrepreneurs and how these components influence the success of social entrepreneurship, sustainable local food security, and social well-being.

Keywords: *mindset, food-based, social entrepreneurship, food security, well-being*

10. SB-010

The Application of 21st Century Technologies To Increase Students' Motivation, Understanding, and Problem-Solving Skills in Learning Mathematics

Amirul Mohamad Khairi Mannan, Mohd Razip Bajuri, Norhaslina Kamarulzaman, Norli Anida Abdullah, Raiha Shazween Redzuan, Hisham Safuan Mohamad Sukri

This study investigates the application of 21st-century technologies in the teaching and learning of mathematics to enhance student motivation, understanding, and problem-solving skills. The integration process involves four steps: identifying suitable activities, strategizing the use of appropriate tools, integrating these tools into teaching, and implementing the activities while assessing outcomes. Technologies such as Geometry tools, Graphing Calculators, Animations, Algebra Calculators, Probability Calculators, and Generative AI were utilized to address the challenges students face in grasping complex mathematical concepts and procedures. The research was conducted with 22 pre-university students from the Centre for Foundation Studies in Science, Universiti Malaya. The methodology included pre-tests, post-tests, and the implementation of technology-integrated activities. Feedback from the participants indicated a significant increase in student motivation (82%), confidence in understanding mathematical concepts (86%), and the development of problem-solving strategies (86%). The results also showed that these technologies are practical and sustainable, easily integrated with existing teaching materials, and promote digital literacy. Students reported that these tools broadened their knowledge of technology, saved time and energy, and enhanced their understanding of mathematical concepts through visualization and interactive learning. The study concluded that the use of 21st-century technologies in mathematics education not only improves teaching efficiency but also significantly enhances the learning experience by making it more engaging and interactive. This approach is crucial for modern education, fostering independent learning and better preparing students for future academic and professional challenges.

Keywords: *21st-century learning tools, mathematics education, problem-solving skills, digital literacy, educational technology integration*

11. SB-011

Influence of Viral Food Marketing Strategies, Behavioural Intention, and Purchase Behaviour of Japanese Foods in Malaysia

Khalilah Abd Hafiz, Maruf Salimon, Nor Rabiatul Adawiyah Nor Azam Mughaneswari Sahadevan, Nor Aliza Mohammad Ali4, Eva Aqilah Abu Jalil, Nurul Najwa Normazi

Viral marketing has become a common marketing strategy in businesses particularly in foods and beverages industry. The impact of viral marketing campaigns has reduced the promotional cost and enabling it to reach targeted audiences rapidly. Drawing on Stimulus-Organism-Response paradigm, the present study aims to examine the influence of the multi-dimensions of viral marketing strategies namely invisibility, identity, innovative, insight, Instantaneity, integration, and interactivity on behavioural intention and purchase behaviour of Japanese foods in Malaysia in the context of social media. This study will apply quantitative research method with a structured online questionnaire as the research tool to collect the data. The study is expected to contribute to the empirical, theoretical, and practical evidence in the food and beverage context.

Keywords: *viral foods marketing, food behavioural intention, food purchase behaviour, Japanese foods, stimulus organism response model*

12. SB-012

Japan as a Muslim-Friendly Destination for Malaysian Travelers: Preliminary Findings

Nur Hafeeza Ahmad Pazil and Ichiro Sugimoto

Japan has intensified efforts to become a more inclusive destination for Muslim travelers. This study presents preliminary findings on how Malaysian Muslim travelers use online platforms to navigate Japan as a Muslim-friendly destination, focusing on social media and specialized apps. This qualitative research utilized in-depth interviews with social media influencers, government agencies, and Malaysian Muslim travelers. These interviews provide a comprehensive understanding of the digital tools and strategies used by these travelers. Malaysian Muslim travelers frequently utilize social media to gather information and share experiences. Facebook groups dedicated to Muslim travelers in Japan serve as a resource where users exchange tips about halal food, prayer facilities, and other Islamic amenities. This information exchange provides real-time advice and fosters a supportive community. Moreover, digital applications enhance the Muslim-friendly experience in Japan. These apps allow users to scan barcodes on products to check their halal status, providing a quick and reliable method to ensure dietary compliance. Malaysian Muslim travelers also increasingly turn to other social media platforms like Instagram and TikTok for reviews and recommendations. Travel influencers and fellow travelers share videos showcasing their experiences with halal dining, prayer facilities, and other aspects of Muslim-friendly travel in Japan. These videos offer valuable insights and visually confirm the availability and quality of Muslim-friendly services, building confidence among prospective travelers. The widespread use of these digital solutions underscores the importance of technology in facilitating religious practices while traveling. Overall, this study highlights the critical role of digital platforms and applications in making Japan more accessible and welcoming for Muslim travelers. By leveraging social media, dedicated apps, and influencer content, Malaysian Muslim travelers can effectively plan and enjoy their trips, ensuring their religious needs are met while exploring Japan. These preliminary findings underscore the potential for further digital innovations to enhance the Muslim-friendly travel experience in Japan.

Keywords: *Muslim-friendly, travel, online, Japan, Malaysian travelers*

13. SB-013

Systematic Literature Review: Using Storytelling to Support Character Development in Children with Trauma

Nurin Wahida Amalin Aslizam, Athirah Azhar

This Systematic Literature Review (SLR) aims to explore the potential of storytelling as a mechanism to support character development in children, particularly those affected by trauma. This research is organized around three objectives: the role of storytellers or narrators; the effects of storytelling on traumatized children; and barriers to implementing storytelling interventions for this demographic. The methodology involves a detailed protocol for literature selection, including criteria for inclusion and exclusion, ensuring a focused and relevant review. By employing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, this study will systematically search and analyse literature from SCOPUS and Web of Science (WoS) to address pivotal questions regarding the important questions of storytelling. Key expected outcomes include identifying the effect of storytelling and understanding the role of storytellers in therapeutic and educational settings to support character development of the traumatized children. By integrating findings from multiple disciplines and contexts, this review hopes to contribute to a nuanced understanding of how storytelling can be applied to their development. The conclusion from this SLR shows that storytelling is an important and effective tool for enhancing character development in traumatized children, offering practical insights for educators and therapists on how storytelling can foster resilience and emotional growth in children.

Keywords: *Systematic Literature Review, Storytelling, Children with Trauma, Character Development, Narrators.*

14. SB-014

Implementation of Forest STEM Module Based on Moral Values in Indigenous Education

Nurul Zulaikha Che Ghani, Nor Hasniza Ibrahim, Johari Surif, Nabilah Abdullah, Muhamad Nur Fariduddin and Chee Ken Nee

This study is highlighting the use of a module in teaching STEM to indigenous students. Indigenous people commonly have extensive knowledge of how to use flora and fauna in their daily lives. However, due to ineffective teaching techniques and insufficient teaching materials, students' knowledge of the STEM concepts underlying each application is limited. Thus, the purpose of this study is to create an active learning environment by developing a Forest STEM Module based on wilderness to instill moral values in Indigenous students using a constructivist learning theory that combines the 5E Instructional Model and 8 Aboriginal Ways of Teaching and Learning. This study uses a qualitative descriptive research design by examining the suitability of the Forest STEM Module from the perspectives of 17 STEM experts through content analysis, and the Inter-rater Reliability (IRR) test. The findings of this study show that 28 items exceed 75% of agreement while one item is below the IRR 75% agreement based on three indicators: (1) content quality, (2) potential effectiveness, and (3) overall satisfaction. These IRR values obtain indicates that the Forest STEM Module is suitable for use as teaching material in STEM classes for indigenous students.

Keywords: *STEM, Indigenous Education, Active Learning, Constructivist Learning Theory*

15. SB-015

An analysis of climate change impact and adaptation strategies among paddy farmers in Kedah, Malaysia

Mohd Noor, A. A, Mohd Isa, M. F, Sharif Ali, S.S and Mokthsim, N.

Climate change have created widespread risks for farmers and livelihood across the world. Kedah located in Northern Malaysia is well-known for the "rice bowl of Malaysia", accounting for the production of almost 43 percent of the country's rice needs, with rice production in the State of Kedah reaching almost 1 million metric tons is now facing the effects of climate change. However, the extent of awareness and impacts of climate change experienced by the paddy farmers in Kedah is scarce and varies. Therefore, it is essential to explore and understand farmers perspectives on climate risks, impacts, and their adaptation strategies. The present study is based in Kedah Darul Aman, one of the Northern States in Malaysia. The researchers examine paddy farmers perceptions of climate change and how climate change had impacted them. Focus group discussions with paddy farmers was utilised to gain in-depth understanding of the climate change issues. Paddy farmers interviewed (n = 25) were done in Yan, Alor Setar, Kota Kuala Muda, and Kubang Pasu, Kedah. Thematic analysis was used to identified overarching themes, suggesting the key concepts that contribute to paddy farmers perspectives on climate change such as "Insufficient Knowledge", "Disperse Varieties of Paddy Diseases", and "Increase Paddy Cost of Operation". Whereas on the adaptation strategies unveil the theme "Diversified Economy Activities" as mentioned by majority of the farmers. This immersed understanding from paddy farmers experiences has strong implications for agricultural related stakeholders and development policymaking, emphasizing the need for providing flexible adaptation alternatives in ensuring sustainability Kedah as the rice bowl of Malaysia.

Keywords: *Climate Change, Paddy, Farmers, Adaptation Strategies, Agriculture.*

16. SB-016

Knowledge Production On Citizen Science Contributions to Sustainable Development Goals In Japan And Malaysia: A Comparative Study

Mohd Faizal Hamzah, Nurfarawahidah Badruesham

This comparative study examines the role of citizen science in advancing the Sustainable Development Goals (SDGs) in Japan and Malaysia by analyzing publication trends within the field. By evaluating scholarly production through citizen science research articles, the research aims to identify the main focus areas of the SDGs in the context of these two countries. A scoping review was conducted using two major index provider databases, Scopus and Web of Science. Search strings were developed and refined before analyzing the search results. The study will highlight significant impacts made by citizen science initiatives and their alignment with specific SDG targets. A bibliometric analysis will be conducted to assess publication trends and the extent of academic engagement with citizen science in both Japan and Malaysia. Furthermore, the study will identify key funding sources and research grants supporting citizen science projects in each country. This research will also explore potential collaboration opportunities between Japan and Malaysia by showcasing successful citizen science initiatives. Through this comprehensive analysis, the study seeks to outline best practices and provide actionable recommendations for enhancing the effectiveness of citizen science in contributing to the achievement of the SDGs in both nations.

Keyword: *Publication trends, citizen science, knowledge production, Sustainable Development Goals (SDGs), Japan-Malaysia*

17. SB-017

Scripting Patriotism: A Corpus-assisted Discourse Analysis on Malaysian Chinese Primary School History Textbooks

Ho Pui Yue and Gan Yee Chin

Patriotism is a powerful social force that influences the identity, behavior, and cohesion of nations, and serves as the cornerstone of national unity and mobilization. This study proposes a corpus-assisted discourse analysis of patriotism in Malaysian Chinese primary school history textbooks. The data used for this analysis came from the transcripts of the content of these textbooks. In discursive structure of the first stage summarizes the historical development of Malaysia in chronological order. The second stage uses quantitative corpus techniques to reveal how textbooks guide readers in forming a conceptual understanding of social organization and cultivate positive patriotic values. Research results show that patriotism in textbooks is expressed both implicitly, by cultivating students' national identity and admiration for national heroes, and explicitly, by promoting the concepts of collective prosperity and safeguarding the nation's independence. This research can inform the development of educational policies and textbooks that foster an inclusive and historically accurate sense of national identity. Additionally, this study encourages the integration of corpus-assisted discourse analysis as a valuable tool for evaluating and enhancing educational materials.

Keywords: *CADS, Patriotism, Malaysian history, textbook*

18. SB-018

Perceptions of Corruption: Effects on Self, Family, and Society among Young Adults

YeeVonne Lim, Hongbin Law and Lim Mengzhen

One way to mitigate corruption is to demonstrate that the costs of engaging in corrupt acts outweigh the benefits. However, there remains uncertainty about how young adults perceive these costs. Therefore, this research aims to explore young adults' perceptions of the effects of corruption on themselves, their families, and society. We interviewed 18 Malaysian participants from diverse ethnic backgrounds: 7 Malaysian Indians (38.9%), 5 Malaysian Chinese (27.8%), 4 Malaysian Malays (22.2%), and 1 (5.6%) each from Malaysian Iban and Malaysian Sino Kadazan backgrounds. The participants consisted of 61.1% females and 38.9% males, with an average age of 23.11 years; 61.2% were currently enrolled as students. Our findings revealed that a majority of the participants (n=7) expressed that corruption does not directly impact them personally. Regarding its effect on families, 3 participants mentioned that corruption sets a negative example for children. Regarding its societal impact, n=4 participants suggested that corruption is perceived as culturally ingrained and normalized. Participants perceive corruption as significantly affecting society but see limited personal impact. This is probably due to young adults being unaware of corruption in their daily lives, as their living expenses and tuition are often funded by their parents, which obscures the personal consequences of corruption. They find it challenging to relate their own experiences to corruption, but they believe that not paying bribes on a societal level impedes normal life progression. We concluded that participants find it challenging to articulate the effects of corruption on themselves, their families, and society. Therefore, creating awareness about the impact of corruption among young adults is crucial, as understanding these effects may potentially deter such behavior.

Keywords: *personal effect, family effect, society effect, corruption, young adults*

19. SB-019

Is Corruption Only About Traffic Police and a Form of Shortcut? An interview Study with Young Adults

Hongbin Law, YeeVonne Lim and Lim Mengzhen

Corruption is widely recognized and extensively discussed in societal dialogue; however, public perceptions may not always capture the full complexity of the issue. Hence, this study aims to explore young adults' perceptions of corruption by addressing two primary questions: first, how individuals perceive and articulate real-life instances of corruption; and second, what motivates individuals to resort to bribery to solve their problems. We conducted interviews with eighteen participants, consisting of 61.1% females and 38.9% males, representing diverse ethnic backgrounds such as Malaysian Indians, Malaysian Chinese, Malaysian Malays, and others. The participants had a mean age of 23.11 years, and 61.2% were currently enrolled as students. Thematic analysis was conducted on transcribed interviews, revealing that when discussing real-life examples of corruption, the most frequently mentioned scenario involved interactions with traffic police, cited by six participants. Instances involving government officials and politicians were also notable. In terms of the function of corruption, respondents commonly viewed it as a shortcut to achieve desired outcomes, a perspective shared by six individuals, and as a means to avoiding penalty. These findings likely stem from personal encounters in their environments, suggesting that corruption is perceived as a pragmatic approach to accomplish tasks. Understanding these perceptions could inform anti-corruption educational initiatives and strategies aimed at addressing corruption among young people.

Keywords: *corruption perceptions, bribery motivations, young adults, anti-corruption strategies*

20. SB-020

Experiences of Children with Dyslexia at Home and School Before Admission to Gazetted Schools

Athirah Azhar, Dolly Paul Carlo and Zamri Hassan

Children with learning difficulties were no exception when it came to being ordered in gazetted school. They may have been victims or simply following orders from their adult friends. They are the same or similar like many other children who are growing up and learning but they needed more time, guidance and understanding from adults. The research objectives are to discover the experiences of dyslexic children in the learning process at school and home prior to their admission to gazetted school. This qualitative study has interviewed 5 respondents with dyslexia using purposive sampling. The respondents were between 15 and 20 years old. The offenses committed included 4 cases of stealing and 1 case of rape. Thematic analysis was used for this study. Findings show that the respondents liked school because they could participate in sports, and they enjoyed language subjects such as Malay Language and English Language, as well as other subjects like Mathematics and History. Based on the respondent's feelings and experiences, dyslexic children expressed feelings of anger and sadness due to difficulties in reading and writing. Despite literacy challenges, they found happiness in social interactions with friends and had a positive perception of their teachers. The respondents also reported having good relationships with their parents or guardians at home. Importantly, they noted that their parents did not compare them unfavourably to their siblings, which likely contributed to their sense of self-worth and emotional stability. Outside of their immediate support network (parents, teachers, close friends), dyslexic children encountered negative stigma primarily from those who focused on academic performance and grades. The negative stigma and pressure related to

academic performance could contribute to behaviours that are perceived as negative or immoral. This highlights the importance of understanding and supporting children with dyslexia beyond academic achievements.

Keywords: *dyslexic children, dyslexic experiences, school detention, juvenile offenders, learning difficulties*

21. SB-021

Exploring the Role of Mother Tongue Education in Shaping Year Five Pupils' Mental Models of the Environment and Their Pro-Environmental Behaviours

Selvajothi Ramalingam and Kavitha Maslamany

Pupils are given fewer opportunities to discover the natural world around them. This has resulted in 'nature deficit disorder' among pupils, especially those living in urban areas surrounded by built environments. This issue is exacerbated when pupils receive limited exposure to environmental education in schools, where they learn environmental concepts as disconnected pieces of information. Pupils who cannot comprehend the environment as a complex and interconnected system will have less awareness of environmental problems. This comprehension is significantly affected by the medium of instruction. Learning science in a language other than their mother tongue can increase cognitive load, causing students to struggle to understand the concepts due to language barriers. Therefore, this study investigates the comparison of Year Five pupils' mental models of the environment between mother tongue- based education (MTBE) and non-mother tongue-based education (non-MTBE) and their relationships with perceived pro-environmental behaviours. A descriptive survey research design was employed in this study. The sample comprised 60 Year Five pupils (30 pupils from MTBE and 30 pupils from non-MTBE) from two schools in an urban area in Kuala Lumpur. Pupils' mental models of the environment were elicited using the Draw-an-Environment Test (DAET). Mental Model Factors and the Environmental Behaviour Questionnaire (MMFEB) were used to identify the factors that influenced the Year Five pupils' mental models and their perceived pro- environmental behaviours. Descriptive statistics, Pearson correlation, content analysis, and regression were used to analyse the data obtained through MMFEB. The findings revealed that the level of environmental mental models of the pupils from MTBE is 80%, while non-MTBE pupils are at 60%. This indicates that MTBE learners performed slightly better than non-MTBE learners. Four types of mental models were identified among the pupils: Model 1 (a Perfect Environment), Model 2 (Interaction Between Human and Environment), Model 3 (Environmental Problems), and Model 4 (Solving Environmental Problems). The correlation findings further revealed that pupils with a higher level of mental models tended to demonstrate more positive pro-environmental behaviour. Additionally, the study found that factors such as school, experience, environmental problems, and socio-cultural factors influenced the level and types of pupils' mental models of the environment.

Keywords: *Year Five pupils, mother tongue education, mental model of environment, pro-environmental behaviour*

22. SB-022

Innovative Strategies for Enhancing Human Capital Development through Social Enterprises in Malaysia and Japan: Achieving the 3 Zeroes and Sustainable Development Goals (SDGs)

Norizan Azizan

This research explores innovative strategies for enhancing human capital development through social enterprises in Malaysia and Japan, aiming to achieve the 3 Zeroes (zero poverty, zero unemployment, and zero carbon emissions) and align with the Sustainable Development Goals (SDGs). The overall purpose is to examine how social enterprises can effectively address societal challenges in human capital development and employment, contributing to sustainable development. The methodology involves a qualitative analysis of case studies from both countries, including data from academic journals, reports, and interviews with key stakeholders. The principal results highlight successful strategies employed by social enterprises such as Madad in Malaysia and Second Harvest Japan, demonstrating significant impacts on community empowerment and human capital development. Interpretations of these results suggest that social enterprises can play a crucial role in achieving the 3 Zeroes and SDGs by providing innovative solutions to social and economic issues. The conclusion emphasizes the importance of collaborative efforts between Malaysia and Japan to share best practices, support policy development, and foster research excellence, ultimately advancing the standards of human capital development through social enterprises. This study contributes to the theme "Wisdom is the Application of Knowledge" by showcasing practical applications of visionary strategies in social enterprise models.

Keywords: *Human capital development, social enterprises, 3 Zeroes, Sustainable Development Goals.*

23. SB-023

Neurodiversity and Inclusion in Japan and Malaysia
Jennifer Yphantides

The topic of inclusive education has been gaining steam internationally over the past three decades. In 1994, 92 governments, including Japan and Malaysia, became signatories of the Salamanca Statement at the World Conference on Special Needs Education, under the auspices of UNESCO. In addition to this, the Malaysian Persons with Disability Act, passed in 2008, further guaranteed formal schooling to all students from elementary to upper secondary. Despite these powerful policy initiatives, relatively little progress has been made towards full inclusion of disabled children, particularly those with hidden disabilities like neurodiversity. However, in 2019, the Malaysian government launched a "Zero Reject" policy which is meant to make significant change in the status quo by pushing full inclusion in mainstream classes up from 50% to 75% by 2023. While policy is critical in guaranteeing rights to disabled students, there are several key problems in practice. The first portion of this presentation will focus on a through literature review of the current problems and some proposed solutions. The second part of this presentation will focus on primary research conducted in Japan. This narrative research study explores English foreign language (EFL) teachers' experiences with neurodiverse students (those with dyslexia, ADHD, and autism) at the tertiary level in Japan and their qualitatively- reported levels of self-efficacy for inclusive practice. Bandura's (1977) theory of self-efficacy, which examines teachers' mastery of experience, vicarious experience, social persuasion, and emotional states, was used as a framework for interpreting teachers' interview data. Findings indicate that EFL teachers at the tertiary level in Japan lack training for working with neurodiverse students, their self-efficacy for creating inclusive classrooms is relatively low, and they lack communication with other institutionally-based professionals who could support them. The practical implications of this study are that EFL teachers in the Japanese context should be afforded additional training, they require the establishment of direct communication with counselling/special needs offices on campus, and issues related to the stigma of neurological differences need to be addressed in order to facilitate discussions between teachers and students about curricular accommodations or

modifications. At the end of the presentation, recommendations will be made for further research and for country-specific improvements to practice.

Keywords: *neurodiversity, special needs education*

24. SB-024

The Wisdom of Arabian Travels to Malay Peninsula and Kanto Based on of 9th Century AD al-Masālik wa al-Mamālik

Thuraya Ahmad

The ancient Arabs were known for their trade journeys through maritime routes, which enabled their interaction with other nations. They even explored the eastern part of the world, which they considered to consist of two neighbouring regions, namely *al-Hind* and *al-Ṣīn*. Many average readers mistakenly deem both as modern-day India and China, thus do not realize that the Malay Peninsula and Kanto also had presence to the Arab seafarers. To unveil this fact, this study employs a qualitative method through document analysis on *al-Masālik wa al-Mamālik* authored by Abū al-Qāsim, ʻUbayduLlāh ibn ʻAbdiLlāh known as *Ibn Khurdādhbih* (d. 885 AD). This geography book was compiled under the command of the Abbasid Empire to gather information about known lands on earth. In grasping further details, this study relies on other classical Arabic books. Ultimately, based on the analysis, this study proves that for the ancient Arabs, al-Hind encompasses South and Southeast Asia, while *al-Ṣīn* is a region stretching from the modern-day Hanoi to the Far East, with its inland neighbouring Tibet and the states of the Turks. The book mentions *Kalah* (Ancient Kedah) and *Jazīrat Tiyūmah* (Tioman Island) of the Malay Peninsula as parts of *al-Hind*, whereas *Qāṇṭū* (Kanto) was a part of *al-Ṣīn*. The wisdom of Arabian travels in exploring and appreciating foreign lands was more aligned with natural wealth. In tandem, the book introduces Ancient Kedah as a land rich with bamboo trees and tin ore, whereas Tioman Island was a stopover spot for ships to refill their fresh water supplies from its wells. The book as well portrays Kanto as being blessed with a river that supplies water to small animals, ducks and chickens. It is interesting to realize that as early as in the 9th century AD, the ancient Arabs were aware of the Malay Peninsula and Kanto with their natural wealth. This study recommends further research on classical Arabic books, particularly those in the field of geography, to highlight the nature and heritage of ancient nations.

Keywords: *Arabian travels, al-Masālik wa al-Mamālik, 9th Century AD, Malay Peninsula, Kanto*

25. SB-025

Perceptions and Social Representations of Adult Videos among Young Adults in Japan: Benefits, Harms, and Gender Differences

Rere Matsumoto and Lim Mengzhen

Academic research frequently emphasises the detrimental effects of adult videos while comparatively neglecting their potential benefits. However, with an increasing number of adult video users, there arises a curiosity regarding the potential advantages of such content. Therefore, this study explores the perceptions of sexually explicit materials among young adults in Japan. Using the structured approach of the theory of social representations, data were collected from 251 participants; 137 (54.60%) male; M age 20.71; 204 (81.3%) are adult videos users; majority were heterosexual and students, and analysed using prototypical analysis to reveal high consensus elements. Five observations were made: (1) There is a greater variety of vocabulary used to articulate the benefits of adult videos, such as satisfying desires, providing pleasure, offering relief, and even contributing to education, compared to discussing their potential harms

like propagating incorrect knowledge; (2) both men and women agree that the benefits of adult videos include satisfying sexual desires, providing stress relief, and enhancing pleasure.; (3) Man tend to use terms such as “sex education” and “crime prevention” when describing the benefits of adult videos, whereas women do not.; (4) both men and women agree that one of the harmful aspects of adult videos is their potential to provide incorrect knowledge.; (5) the difference between men and women when describing the harmfulness of adult videos is that men often use the term "addiction," whereas women tend to use the term "encouraging sexual crime. These findings provide insight into the social representations of adult video among young adults in Japan and suggest future directions for research in the feld.

Keywords: *adult videos, benefit, harmfulness, gender, pleasure, stress*

26. SB-027

The Impact Of Good Facilities On High School Students

Nur Izzah Binti Harifin, Mohammad Aniq Bin Amdan and Fatin Asyiera Nabila Binti Shamshol Bhari

This research examines the impact of good facilities on high school students. A facility is an infrastructure a place provides to facilitate or implement something. Facilities provided by the school are such as libraries, science or computer laboratories, sports fields, and others. Good and complete facilities will have a positive impact on the development of students at school. The objective of this research is to identify what is a good facility from a student perspective, to identify the effectiveness of a good facility on student academic performance, and lastly to determine the role of school facilities in shaping student’s educational experiences. This research will be carried out using qualitative interviews and information was collected through interviews conducted with several high school students. This study proves that good and complete facilities have a good impact and influence on student achievement in school.

Keywords: *Infrastructure, school, development, qualitative interview, achievement*

27. SB-028

Exploring the Influence of Social Media on Learning in Higher Education: A Study in Kota Kinabalu, Sabah

Fatin Asyiera Nabila binti Shamhol Bhari, Mohammad Aniq bin Amdan, Nur Izzah binti Harifin and Mohamad Aidil Hazidi bin Kasdiah

The impact of social media on the learning process of higher education students in Kota Kinabalu, Sabah has become a focal point of interest due to social media’s pervasive influence on various aspects of daily life. This study aims to investigate how social media affects learning among higher education students in Kota Kinabalu, Sabah. The qualitative research involved ten students from different higher education institutions in Kota Kinabalu, with thematic analysis focusing on the advantages and challenges posed by social media in the learning environment. Despite the growing interest in the influence of social media on education, there is limited research specific to higher education students in Kota Kinabalu, Sabah. Additionally, the unique cultural and academic context of this region may present distinct obstacles and opportunities that differ from more widespread studies. This study intends to address this gap by offering targeted insights into how social media impacts learning in this particular demographic and geographic location. The outcomes of this research are expected to offer tailored recommendations for educators and policymakers in Kota Kinabalu, contributing to a more comprehensive understanding of the subject at the local level.

Keywords: *Social media, higher education institutions, academic, education.*

28. SB-029

The impact of student's economy on their academic experience in Private Higher Educational Institutions (PHEIs) in Alamesra

Elviana Danniel, Avilla Palajuman, Charisthy All Modumis, Inlo Ansim, Mohammad Aniq bin Amdan

Economics is a crucial feature of every university, particularly for PHEI students. However, not all pupils face the same issues because some have a strong background. The goal of this research is to identify the issues that students experience, determine the impact of economy on students' academic experience and discover the strategies that students have utilized to overcome these obstacles. The participants of the research are from UNITAR College, UNITAR International University and City University. Three research questions were included in the collection that the researcher used to determine the challenges that each participant in the chosen study was facing. According to the interview, some participants are having major economic troubles, while others have a similar solution. Overall, the difficulties of student economics, particularly among PHEI students, must be addressed gradually with the assistance of the government and other relevant parties. This enables each student to focus on their academic achievement. Factors relating to the student economy, as well as family background and money consumption, have a significant impact on students. However, the parents' background is simple. Research contributions that can be recommended include contributing the PHEI financial management, enhancing academic performance, providing direction for fee policies and financial aid, building collaborations and cooperation, and pushing financial management innovation.

Keywords: *Economic, PHEIs, Student*

29. SB-030

Effects of Urban Densification on Quality of the Built Environment of Kano Metropolis in Nigeria

Abdul-Azeez Raji, Martha James Mshelia and Halima Abdulkadir Idris

Urban growth in many cities in Nigeria has resulted in an increase of built-up areas in urban centres such as Kano Metropolis; this has become a major challenge for urban environmental sustainability. This growth has over time contributed to a number of environmental, social, and economic problems like traffic congestion, land use conflicts, destruction of the natural environment, conversion of agricultural and forest land uses to other forms of urban land use. Urban densification has become an acceptable way to respond to urban change as it ensures sustainability, efficiency and increases the livability of cities. This research analyzed the effects of urban densification on environmental quality of the built environment in Kano Metropolis, with a view to proposing workable solutions to imminent environmental problems in the Metropolis. The Delphi survey was employed to gather information from experts using the snowballing sampling technique, which was centred on housing, infrastructures and aesthetic qualities of the built environment. The results show the character of urban densification to be determined largely by increase in population and demand for more built up areas for living with little consideration to ensure that the environment has the ability to support life and maintain ecological processes. Findings also pointed out how characteristics of the built environment- where to build and how to build; with beneficial environmental results were ignored resulting in the replacement, damage and destruction of ecosystem functions thereby affecting the amount and quality of essential habitat for livability. The study recommends the need to change the course of urban densification

from being people-driven to policy-driven through effective planning, development and policy implementation defining the role of all the stakeholders in urban planning. Also, urban densification should be embraced fully, as it provides a number of advantages like promoting efficient land use, enhancing public transportation, and development of public infrastructure and social amenities which will contribute in improving the well-being of the urban population and the quality of the environment.

Keywords: *Urban Densification, Environmental Quality, Built Environment.*

30. SB-031

Utilization of Artificial Intelligence (AI)- tools in Mathematics Among Higher Learning Students in Malaysia

Mohammad Aniq Bin Amdan, Mohd Aidil Hazidi Bin Kasdiah and Naldo Janius

The advancements in Artificial Intelligence have significantly impacted various sectors, including education, particularly in the field of mathematics. AI tools offer new avenues for enhancing learning experiences, providing personalized support, and simplifying the resolution of intricate mathematical problems. This study examines the use of AI tools in Mathematics among higher education students in Malaysia. The research focuses on incorporating AI in basic to advanced mathematics courses across different fields of study, assessing effectiveness and challenges. Qualitative research methodology will be employed, utilizing semi-structured interviews to gain a profound understanding of how students integrate AI tools into their mathematical studies. The interviews aim to elucidate students' experiences and perceptions regarding the impact of AI tools on their learning outcomes. This study seeks to address the existing gap in understanding the precise effects of AI tools on math learning in higher education. While prior studies have mainly concentrated on the technical capabilities of AI in education or general applications, there is limited research on the specific experiences and outcomes of using AI tools in mathematics among Malaysian higher education students. By bridging this gap, the study will offer practical implications for mathematics education, offering valuable insights for educators, policymakers, and technology developers. The primary goal is to explore how AI tools can enhance mathematical understanding and identify areas for improvement in AI-supported educational practices.

Keywords: *Artificial Intelligence, AI Integration, Higher Learning, Mathematics, qualitative research.*

31. SB-032

The Effect of Using AI-Tools in Learning For Education

Izzah Athirah Binti Zainudin, Mohammad Aniq Bin Amdan and Fatin Asyiera Nabila Binti Shamshol Bhari

The purpose of this study is to examine the effects of incorporating artificial intelligence (AI) capabilities into classroom environments. The potential of AI technologies to transform learning processes is becoming more widely acknowledged as they improve. This study examines the body of research to determine how AI tools might improve learning outcomes, tailor instruction to the needs of individual students, and increase student engagement. It also examines the difficulties that come with integrating AI in education, including moral dilemmas and technical constraints. This study intends to provide insights into the developing role of AI-tools in altering conventional educational paradigms by synthesizing current research findings. Therefore, we study an article where the Potential of Artificial Intelligence (AI) in Education and Technical and Vocational

Training (TVET) in Malaysia, has advantages in Education. In this article we also examine what are the effects of using AI and what challenges will face when using AI in their education.

Keywords: *Artificial Intelligence (AI), students, Technical and Vocational Training (TVET), classroom, Education*

32. SB-033

Unveiling the Power of Mentorship: Japanese Students' Academic Journey in Klang Valley, Malaysia

Thanam Subramaniam, G Manickam Govindaraju and Silllalee Kandasamy

Teachers play an essential role in the development and success of a student's life, particularly in their learning process. Beyond traditional teaching, coaching and mentoring are effective tools for student development. Consequently, many educational institutions have implemented mentoring systems to assist students throughout their academic journeys. Mentorship is crucial for graduate students, providing valuable emotional support during the highly stressful phases of their academic pursuits, with enduring effects on their careers. Despite its importance, past literature indicates a lack of studies on the effectiveness of mentoring systems in higher educational institutions. Thus, this study aimed to investigate the effectiveness of the mentoring system in the teaching and learning processes among Japanese students in Klang Valley, Malaysia. This study employed a combination of Biggs' 3Ps Model and Vygotsky's Scaffolding Theory to frame its investigation. A quantitative approach was adopted, utilising a self- administered survey for data collection from 10 lecturers and 150 Japanese students in Klang Valley, Malaysia. Partial Least Squares-Structural Equation Modelling (PLS-SEM) was utilized for data analysis. The study's findings revealed that a mentor's communication skills, approachability, personal congruency, and nurturing care significantly influence the mentee's growth and development. The mentees' progress was assessed regarding their confidence levels, academic performance, anxiety reduction, and career support. Hence, this outcome provided significant insights for higher educational institutions, highlighting the importance of effective mentoring systems in developing graduate students. These insights will be valuable for educational policymakers, industry practitioners, and academicians who aim to cultivate a valuable generation for the future. The study's outcomes will offer a deeper understanding of how mentoring can enhance learning and support student development, addressing a critical gap in the literature. Overall, this research aspires to contribute to the ongoing discourse on educational strategies, emphasizing the vital role of mentorship in higher education and its long- lasting impact on students' academic and professional trajectories.

Keyword : *mentoring, learning, academic performance, communication, approachable*

33. SB-034

Branding Cruise Tourism Destination to Enhance Destination Loyalty in Penang, Malaysia: A Customer-Based Brand Equity Pyramid Perspective

Md. Tariqul Islam, Neethiahnanthan Ari Ragavan and Jeetesh Kumar

The cruise tourism sector in Malaysia is experiencing rapid growth, with an 85.71% increase in cruise tourist arrivals reported in recent years. Malaysia's ports are well- equipped with modern facilities to accommodate cruise ships worldwide. Penang is emerging as a promising cruise tourism destination in Malaysia. Penang receives significant tourists, but the number is negligible for cruise tourists. Moreover, Penang experienced the highest budget deficit this year, and the unemployment rate also increased. However, increasing the growth of cruise tourist arrivals could be a better solution for these issues. On the other hand, enhancing tourist loyalty towards

destination loyalty positively impacts tourist arrival growth. Several authors identified destination branding as an effective strategy to enhance tourists' visit intention and arrival growth, which indicates the significance of conducting a study on cruise tourism destination branding in Penang, Malaysia. This conceptual study will develop a conceptual framework to assess the impact of destination branding on enhancing destination loyalty through the Customer-Based Brand Equity Pyramid (CBBEP). This pyramid illustrates that brand identity – salience (bottom of the pyramid). Brand meaning – performance and imagery (second level of the pyramid). Brand responses are the individual's feelings and judgments (third level of the pyramid). Brand relationships – resonance (top of the pyramid). Based on this pyramid, the study proposes that cruise destination salience is positively associated with perceived destination quality and perceived destination image, which subsequently influence destination attachment and, eventually, destination loyalty. This study significantly advances the CBBEP theory by applying it to the cruise tourism sector, offering a nuanced understanding of brand equity components within this context.

Keywords: *cruise tourism destination branding, destination salience, destination quality, destination image, destination attachment, destination loyalty, Penang Malaysia, customer-based brand equity pyramid*

34. SB-035

Perspectives of Malaysian Mental Health Professionals on the usage of Non-erotic Touch in Therapy

Alicia Wong Shu Pei, Ng Suet Choon and Serena In

Touch is the most primitive ways of communication and care between human beings. Mother hugging a newborn with her hands touching the skin of the baby; the baby responds to the touch and recognises the skin of mother. This is the first human contact; the human bonding starts from this very single moment. As an individual grows up, touch such as hugging, handshakes, and patting on the shoulder becomes a sensitive and taboo topic in certain countries, cutting across differences of cultural practices. In this research, researchers focus on the in-depth understanding of the experiences and context that contributes to Malaysian mental health practitioners using touch in psychotherapy sessions. The objective of this qualitative phenomenological research is to understand the meaning of non-erotic touch for Malaysian mental health practitioners in Malaysia when providing therapy to adults. Researchers conducted the research with thematic analysis approach on 10 licensed counsellors who used touch in their practices. Purposive snowballing method was applied to gather the participants; member checking and other research procedures were applied to ensure the trustworthiness of research. In the finding, researchers found several emerging themes from the interview with participants such as touch is therapeutic, consent as a form of power, self-personal experiences. Even though touch has a therapeutic effect, it does come with risk and cautions, such as cultural and religious practices where the practitioners are base In conclusion, multicultural sensitivity plays a vital role in applying touch as part of the implication during therapy sessions.

Keywords: *touch, non-erotic, psychotherapy, Malaysia, psycho-therapeutic touch.*

35. SB-036

AI-Enhanced Science Learning: Reshaping the Educational Scenario of Malaysia

Mohamad Aidi Hazidi Bin Kasdiah, Mohammad Aniq Bin Amdan, Fatin Asyiera Nabila Binti Shamshol Bhari and Nur Izzah Binti Harifin

This research project investigates the potential of using artificial intelligence tools as to enhance student learning and engagement with the scientific method, and thus it contemplates changing the face of science education in Malaysia. The focus is on how AI tools may be used to enhance student learning. This will be a qualitative study conducted in two phases: literature review and semi-structured interviews. The literature review will be carried out with the needs and issues of the Malaysian education system in mind to understand the current environment and prospective benefits that could be delivered by AI in scientific education. Thus, it shall underpin areas where AI could offer considerable support. This paper focuses on the investigation of current methods of science learning and views on benefits and problems connected with incorporating artificial intelligence in Malaysian primary and secondary schools, using semi-structured interviews with educators and students. More specifically, in Malaysia, there is a research gap concerning the effectiveness of AI in science education. The main aim of the study is to get an insight into teachers' and students' perspectives on the potential use of AI in enhancing learning science and engaging young people with the scientific method. Moreover, it will delve into how AI tools have been tailored to meet the requirements of the curriculum, learning styles, and cultural context of the Malaysian Schooling System. Finally, it will delve into the ethical concerns raised by integrating AI into classrooms. The research aspires to inform meaningful development and implementation of effective, ethical, and useful AI-powered learning experiences for scientific education in Malaysia.

Keywords: *Artificial Intelligence, AI Integration, Malaysian Science Education, Ethical Considerations, Learning Styles.*

36. SB-037

The Impact of ICT In Teaching and Learning to UNITAR Sabah Students

Nurul Zakiah Binti Herman, Mohammad Aniq Bin Amdan and Fatin Asyiera Nabila Binti Shamshol Bhari

The use of technology in every university is very important these days. In addition, at UNITAR International University, Sabah when the final exams start, they need to use a laptop too because it is a physical online exam and UNITAR also priorities the use of LCD during presentations as well. For this reason, we conducted this study on the extent to which ICT is important among UNITAR Sabah students, and what are the challenges they face when using the technology they already have to learn. In this study, we will examine the impact of ICT use on academic performance and knowledge processes among students at UNITAR Sabah and whether it has a positive or negative impact. In this study, it also aims to use a qualitative method design to study the impact of ICT use in teaching and learning at UNITAR International University, Sabah. Data will be taken from 5 respondents who are students in semester 5 and above because they have been at UNITAR for a long time, we will meet with these 5 students for interviews and seek their opinions about the impact of ICT in teaching and learning.

Keywords: *Student, Information Technology (ICT), teaching, University, qualitative*

37. SB-038

Adaptation of Japanese Bento Concept for Malaysian Indian Food Among Gen Z in Malaysia

G. Manickam Govindaraju, Thanam Subramaniam and Silllalee S. Kandasamy

Many studies have been done on food packaging and purchasing behaviour. Among these, research on Japanese food is one of the highly researched areas. Despite Japanese Bento lunch packaging style being highly popular on social media, researchers give less focus to this aspect.

Therefore, this study investigates the adaptation of the Japanese Bento concept for Malaysian Indian food packaging among Generation Z (Gen Z) in Malaysia, focusing the Klang Valley region. Data were collected using a quantitative research approach through surveys from 200 Gen Z respondents. Cross-cultural adaptation theory was used as the theoretical framework for this research. This study aims to understand the factors influencing the acceptance and adaptation of the Bento concept among Gen Z, focusing on key variables such as media exposure, health consciousness, convenience, and aesthetic appeal. The findings reveal a significant positive relationship between media exposure to Japanese culture and the acceptance of the bento concept among Gen Z in Malaysia pertaining to Malaysian Indian food. Respondents who regularly engaged with Japanese media, including anime, dramas, and culinary shows, demonstrated a higher likelihood of embracing bento-style meals for Indian food. Health consciousness emerged as a crucial factor, with health-focused individuals showing a greater preference for the balanced and portion-controlled nature of bento boxes. Convenience was identified as a major determinant in the adaptation process. Gen Z respondents appreciated the practicality of having a complete meal in a compact format, which suits their fast-paced lifestyles. Additionally, the aesthetic appeal of Bento boxes significantly influenced their acceptance. The visually appealing presentation of bento meals with organised compartments was deemed pleasing to the respondents. Despite the positive reception, challenges such as sourcing appropriate packaging materials and maintaining food freshness were noted, highlighting areas for further improvement. This study concludes that the Japanese bento concept holds a substantial potential for adaptation and acceptance among Gen Z in Malaysia, particularly when applied to Indian cuisine. This is because the organisation and practical meal arrangement using Japanese Bento concept is highly valued and adapted by many countries and cultures.

Keywords: *Japanese Bento Packaging, Malaysian Indian food, Cross-Cultural Adaptation, Generation Z*

38. SB-039

The Impact of Technological Approach in Enhancing the Effectiveness of Mathematics' Teaching and Learning

Avilla Binti Palajuman, Mohammad Aniq Bin Amdan, Charisthy All Modumis, Elviana Danniel and Inlo Ansim

The performance of students in the classroom depends greatly on the effectiveness of mathematics teaching and learning. Without a doubt, effective mathematics teaching and learning support students' development of critical thinking and problem-solving abilities. Several approaches have been developed to improve the effectiveness of mathematics teaching and learning. The goal of this study is to explore ways in which technological approach can improve the efficacy of mathematics instruction. Many students still struggle with mathematics despite the numerous educational reforms due to the traditional teaching strategies that do not completely engage them into mathematics learning. In fact, incorporating technology into mathematics teaching and learning plays significant roles where it emphasises on active engagement between students. Thus, interviews were conducted with students and teachers to acquire insight into their experiences and perceptions. The findings revealed that students were reported with better levels of interest and motivation when technology was used in their teaching and learning sessions. Therefore, this study concludes that improving the efficacy of mathematics teaching and learning can be achieved by integrating technological approach into the lessons.

Keywords: *Teaching and learning, Mathematics, technological, effectiveness*

39. SB-040

Decoding Doraemon: Semiotics and Cultural Dissemination of Japanese Culture in Malaysia

Silllalee, K., Manickam, G.G. and Thanam, S.

The global rise of Japanese cartoons and anime confirms to their extensive cultural appeal, where Malaysia is no exception to this phenomenon. This study explores the dissemination of Japanese culture through the iconic cartoon Doraemon, which has achieved substantial popularity in Malaysia. Aired by the national television network and dubbed into the national language, Bahasa Malaysia between 1992-2002, Doraemon's inclusion in the national programming highlights its adherence to cultural values and meaningful principles that the network endorses. The is a qualitative research where semiotic and cultural theories, are utilised to examine how Doraemon functions as a cultural bridge, transmitting Japanese cultural elements to Malaysian audiences. The study employs a triangulation method, engaging undergraduate students who have grown up watching Doraemon through focus groups. This approach captures the diverse perceptions and interpretations of the cartoon's cultural narratives. The findings indicate that Doraemon is not merely a source of entertainment but also a medium for imparting Japanese societal norms, ethics, and traditions to Malaysian viewers. The cartoon's characters and storylines, rich with themes of normative culture (respect, tolerance, helpfulness, unity, and loyalty), material culture (food, clothing, accommodation, and daily use goods), and belief system (customs, belief in angels, magic, and ghosts). align closely with Malaysian cultural values. Additionally, the study reveals that Doraemon facilitates cultural understanding and appreciation among Malaysian youth, enhancing their sense of global interconnectedness. Doraemon's ability to convey complex cultural messages through simple, relatable stories underscores the role of media in cultural dissemination and identity formation. The research highlights the significance of cross- cultural media consumption in fostering intercultural dialogue and understanding. It also emphasises the educational potential of cartoons like Doraemon in promoting cultural values and principles that resonate universally. The insights of the mechanisms of cultural transmission through animation, contributes to the broader discourse on media's role in shaping cultural identities and promoting global cultural exchange, especially in bringing Japanese culture and values into Malaysians lifestyle.

Keywords: *Doraemon cartoon, Cultural theory, Semiotic theory, Identity, Media consumption*

40. SB-041

Digital Innovation in Education: The Role of ICT in Enhancing Teaching Quality By Teachers

Siti Norashikin binti Rahman, Mohammad Aniq Bin Amdan, Fatin Asyiera Nabila Binti Shamshol Bhari

Digital transformation in education has opened up great opportunities to improve the quality of teaching and learning. This article discusses how the use of Information and Communication Technology (ICT) can influence and improve the effectiveness of the teacher’s teaching process in the classroom. Through literature analysis and case studies, this article will identify the role of ICT in education. Next, identify the challenges faced by teachers in integrating ICT into teaching and identify strategies to overcome the challenges faced by teachers in integrating ICT into teaching. This research was conducted through qualitative interviews and information was collected through interviews conducted with several teachers in secondary schools. This article outlines the importance of ongoing training and support for teachers in the use of ICT and calls

for collaboration between stakeholders to ensure the success of digital transformation in education.

Keywords: *Education, Information and Communication Technology (ICT), Teaching Quality, Digital Innovation, Classroom.*

41. SB-042

Nurturing Academic Writing Skills for English as a Foreign Language Learners at a Writing Center in Japan

Aliyyah Nuha Faiqah binti Azman Firdaus

Writing centers have been a regular fixture of North American universities since the 1930s. These writing centers serve to intervene in the writing process allowing room for the tutor and student to work collaboratively through open communication. Building upon the success and popularity of writing centers in North America, Asian universities began to adopt the writing center policy and incorporate it as a service in their institutions. In the context of East Asia, universities in Japan are not far behind. Amid growing concern about students' lack of academic writing skills in English, writing centers have become increasingly common at Japanese universities. At present, there are approximately 19 writing centers in Japan and the number is steadily growing yearly. This study presents a case study report on the important role played by a writing center in a Japanese university in nurturing academic writing skills for English as a Foreign Language (EFL) learners. The purpose of the study is to gain deeper insights into the motivation, management and sustainability of a Japanese university writing center in the Asian region. The findings include personal reflections of the researcher as a former postgraduate tutor at the writing center, the writing center's philosophy, types of services provided, training and professional development of tutors and the challenges faced by tutors when conducting writing tutorials in an EFL setting. Although this study provides a local perspective within the boundaries of Japan, the lessons learnt are applicable to the increasing number of writing centers within Asia, including Malaysia. The study may also offer guidance and insights to universities in Malaysia who are interested in establishing their own writing centers.

Keywords: *writing center, academic writing, English as a Foreign language, Japan, Malaysia.*

Track 3: Law, Economy and Business

1. SC-001

The Technical Efficiency of Foreign Labour Force in Malaysia: A Kmenta Elasticity-augmented Stochastic Frontier Analysis

Chong Yee Hang

In this paper, we introduce the developing economy of Malaysia as our subject of study. The nation has a high reliance on the cheaper foreign labour force that is regarded as more labour-productive in the economy, especially in lower-skilled industries such as agriculture, mining and construction. Nevertheless, debates about whether foreign labour demotivates effective capital adaption and technology transfer linger in society. Our research purpose is to study about the effectiveness of foreign labour in the current economic model of Malaysia over time, in terms of technical efficiency they may exhibit.

With our successful collection of data from proprietary sources, as well as from the recent update of the open database from Malaysia's official site, we are able to produce significant statistical results by forming state-level panel data for national analysis. Thus, the main finding of this paper is that foreign labour, despite being highly dependent on the producer side for production, exhibits a technical efficiency term. That is, foreign labour presence is regarded as an effective input in the economy as they are efficient in production. Another major significance of this paper is that we introduced an original methodology incorporating an elasticity-driven production function into Malaysia's economy's frontier production modelling process. Through the elasticity-driven production function, we found that labour inputs are overall inelastic. This raises future questions if Malaysia can continue to benefit the efficiency of labour inputs generated in future when capital inputs are growing more critical in the global trend. Future research may also be necessary to answer such questions.

***Keywords**: foreign labour, technical efficiency, elasticity, production function, stochastic frontier analysis.*

2. SC-002

The Impact of Precarious Employment on Work Engagement and Voice Behavior of Contract Based Employees

Roshayati binti Abdul Hamid

Voice behaviour is crucial for developing strategies to boost organizational competitiveness in a complex business environment. It involves employees proactively and constructively communicating their ideas, suggestions, or opinions within the organization. However, recently, numerous concerns have emerged regarding precarious employment. This type of employment refers to insecure work that lacks the benefits typically associated with contract-based positions. The current issues faced by contract-based employees in Malaysia have created an opportunity to examine the effects of different employment types on voice behaviour. Contract-based employees may feel that their temporary status diminishes the significance or impact of their input, leading to reluctance in expressing their opinions. Therefore, this study aims to investigate the relationship between precarious employment and voice behaviour among employees in the public sector. Additionally, work disengagement, characterized by a lack of emotional, cognitive, and physical investment in work tasks, is expected to mediate this relationship. Organizations can mitigate the negative effects of precarious employment by providing additional resources, such as organizational support. Hence, the objective of this study is to examine the direct impact of precarious employment on voice behaviour and to evaluate this relationship with work engagement as a mediator, while perceived organizational support acts as a moderator. Within the framework of Conservation of Resources theory, precarious employment is viewed as a condition where employees face increased risks of resource loss, which can deplete their motivation and lead to lower levels of work engagement, ultimately making them less likely to engage in voice behaviour. The participants of this study comprise contract-based employees from various public sector in Malaysia. Data collected were analysed using SPSS and SmartPLS 4.0 software, revealing support for both direct and indirect relationships. The results provided valuable insights into how contract-based employees engage and their willingness to provide constructive feedback in a public sector context. Understanding these dynamics can help organizations devise strategies to support precarious employees, boosting their engagement and fostering a culture of open communication.

***Keywords:** Precarious Employment, Contract-Based Employee, Work Engagement, Voice Behaviour, Perceived Organizational Support*

3. **SC-003**

Empowering Sustainable Practices: The Role of Malaysia Green Electricity Tariff Program in Decarbonisation and Reducing GHG Emissions.

Mohd Amirulazry Bin Mohd Amin

The Green Electricity Tariff (GET) program, launched by the Malaysian Government in 2021, marks a significant stride towards sustainability and combating climate change. By offering consumers a practical wat to embrace renewable energy sources like solar and hydro, GET not only reduces individual carbon footprints but also pushes Malaysia towards a cleaner energy future. Simplified enrolment via the user-friendly myTNB portal managed by Tenaga Nasional Berhad (TNB) ensures accessibility for all Malaysians, promoting widespread adoption of renewable energy practices. GET pricing structure reflects the true cost of renewable energy production in Peninsular Malaysia. While prices may be higher compared to conventional sources, they transparently represent investments in building a robust renewable energy infrastructure. Participants are incentivised with Malaysian Renewable Energy Certificate (mREC), proving their commitment to environmental conservation and encouraging further involvement. Moreover, GET plays a key role in reducing Scope 2 emission according to GHG protocol standards. By encouraging the switch to renewable energy, the program helps lower greenhouse gas emissions associated with electricity consumption, contributing to a cleaner environment. Beyond individual participation, GET serves as a catalyst for consolidating demand for renewable energy, driving investments in green projects, and creating sustainable job opportunities. This mutually beneficial relationship between consumers and the green energy sector not only boosts economic growth but also positions Malaysia as a leader in sustainable future. Its inclusive and transparent approach empowers individuals and businesses to actively contribute to climate change mitigation, paving the way for a thriving green economy and brighter, greener Malaysia.

Keywords: *Green, Solar, Hydro, Renewable Energy & Tariff*

4. **SC-004**

The Critical Digital Transformation of Micro, Small, and Medium Enterprises (MSMEs) in Labuan, Malaysia

Geoffrey Harvey Tanakinjal, Owen Chen Chee Onn, Lee Hock Ann, Ricky Chia Chee Jiun, Chooi Yew Tzen, Alesia Sigang Gugkang, Zurinah Patrick, Mary Monica Jiony, Bonaventure Boniface, Raymund Pang Onn Phin, Tan Soon Kiat, Clare Bernard Edie, Stephen Sondoh Jr @ Jude and Anath Rau Krishnan

Purpose: This research investigates the digital readiness of MSMEs in Labuan, aiming to assess their current state, pinpoint improvement areas, and offer actionable insights to boost their digital capabilities. It focuses on key factors like technology adoption rates, digital skills proficiency, and navigating digital business complexities to empower Labuan's MSMEs for success in today's dynamic business landscape. The study underscores the critical role of digital transformation in fostering growth and competitiveness among MSMEs amid ongoing economic shifts.

Methodology: Data collection was conducted through surveys and potential case studies, targeting business owners from trader communities registered with Labuan Corporation. A total of 158 responses were gathered via Google Forms with support from NGOs and government agencies. Methodological validation was ensured through the use of Smart PLS to maintain rigor and reliability.

Results: The findings highlight the present digital literacy and readiness levels among MSMEs in Labuan, revealing diverse levels of technology adoption and proficiency in digital skills. Moreover, the study identifies challenges such as limited resources and institutional factors that hinder MSMEs from fully embracing digital transformation.

Interpretations: The interpretation of results emphasizes the critical role of digital readiness in enhancing innovation, efficiency, and economic resilience for MSMEs. It highlights the implications of digital literacy gaps and resource constraints on the competitiveness and sustainability of businesses in Labuan's economy.

Conclusion: Addressing limited resources, institutional challenges, and the need to enhance digital skills are crucial for Labuan's MSMEs to achieve sustainable growth and competitiveness in a globalized economy. This study underscores how overcoming these challenges can transform MSMEs, driving greater innovation and resilience through digital technologies.

Keywords: *Digital Transformation, MSMEs, Labuan, Digital Readiness, Economic Competitiveness*

5. SC-005

Understanding the Value of Copyrighted Material in AI Systems from a Malaysian Perspective

Umi Hasheida Hussain, Prof. Dr. Zinatul Ashiqin Zainol and Prof. Madya Dr.Safinaz Mohd. Hussein

This article explores the complex relationship between artificial intelligence (AI) systems and the use of copyrighted material, with a focus on the Malaysian context. As AI technology, particularly large language models (LLMs), advances, the need for extensive and diverse datasets often includes copyrighted content. This requirement raises significant ethical and legal challenges.

The primary purpose of this research is to understand the value of copyrighted material in AI systems and the implications of Malaysian copyright laws. The methodology includes an analysis of AI system fundamentals, the types of data used in AI training, and the legal framework provided by the Malaysian Copyright Act 1987. Additionally, it observes initiatives by the Malaysian Digital Economy Corporation (MDEC) and the Ministry of Science, Technology, and Innovation (MOSTI), such as the development of the National AI Governance and Ethics Guidelines and the establishment of Task Force 1: Legislation and Ethics under the National Blockchain and Artificial Intelligence Committee.

Key findings reveal that copyrighted material significantly enhances AI capabilities due to its high quality and diversity. However, unauthorized use of such content poses severe legal risks, including civil lawsuits and criminal penalties. Ethically, using pirated content without proper licensing undermines intellectual property rights and the creative industry, highlighting the need for responsible AI practices.

Interpretations suggest that compliance with copyright laws and ethical standards is crucial for responsible AI development. Best practices include obtaining proper licenses, conducting due diligence, and fostering collaborations between AI developers and content creators. Malaysian initiatives, such as MDEC's guidelines and awareness programs, support ethical AI practices.

In conclusion, aligning AI practices with legal and ethical standards is essential for fostering a sustainable and innovative AI ecosystem in Malaysia. Responsible AI development mitigates legal risks, promotes respect for intellectual property rights, and encourages ethical innovation. Future

directions include potential updates to Malaysian copyright laws, new licensing models, and increased education on co pyright issues.

Keywords: *Artificial Intelligence (AI), copyright material, intellectual property rights, Malaysian copyright law, ethical AI practices*

6. SC-006

Government Director's Role Identity and Social Group Identification: The Effects on Corporate Governance in Malaysian State-Owned Enterprises.

Noradiva Hamzah, Sharifah Azlina Syed Anuar and Mohd Mohid Rahmat

This paper investigates how the government director's role identity and social group identification affect Malaysian state-owned enterprises (MSOEs) corporate governance. Underpins the social identity and role identity theories, government directors of MSOEs are likely to have multiple identifications with role identities and social groups, and the congruent identifications positively impact their board oversight roles. In contrast, a negative impact occurs when the identifications are conflicting. Qualitative findings from twelve informants show that government directors with a strong identification with the role of the government board of directors perform primary oversight functions, while government directors who strongly identified with the role of a corporate director or have a strong identification with the MSOEs are likely to be hesitant with the role of a corporate director or have a strong identification with the MSOEs are likely to be hesitant to perform monitoring functions. Dual identification with the role of a government board of directors and a corporate director encourages the government board of directors to perform all the primary board functions.

Keywords: *Role Identity, Identification, Board of Directors, Corporate Governance, State-Owned Enterprises*

7. SC-007

Entrepreneurial Orientation and Managerial Skills in Sabah and Sarawak : From a Co-operative Perspective

Stanley Tan, Bonaventure Boniface, Stephen Liaison Sondoh Jr and Geoffrey Harvey Tanakinjal

This study examines the relationship between entrepreneurial orientation and the development of managerial skills among cooperative members in Sabah and Sarawak. Using a robust hypothesis testing framework, the research investigates how entrepreneurial orientation influences financial, human resource, marketing, network, organizing, and strategic planning skills. The findings reveal significant positive impacts across all skill domains, highlighting the critical role of entrepreneurial orientation in enhancing managerial capabilities. Entrepreneurial orientation was found to have the most substantial effect on financial skills, indicating that initiatives aimed at fostering an entrepreneurial mindset can significantly improve financial management capabilities. Similarly, strong positive relationships were observed between entrepreneurial orientation and both human resource and network skills, suggesting that cooperative members with a higher entrepreneurial orientation are better equipped in leadership, team-building, and networking. The findings provide valuable insights for policymakers and cooperative leaders aiming to strengthen managerial competencies through targeted entrepreneurial education initiatives.

Keywords: *East Malaysia, entrepreneurial orientation, managerial skills, co-operative success, co-operative challenges.*

8. SC-008

Economic Empowerment of Coastal Women: A Case Study of Pattingalloang Fisherman's Village, Makassar, Indonesia

Athira Rinandha Eragradini GP and Aulia

Women are crucial contributors to the local economy in coastal areas, especially in fishing-related sectors. Their contributions are frequently unnoticed and underestimated; however, they are important to coastal families' economic well-being and poverty reduction. This study aims to examine women's economic empowerment activities in the Pattingalloang Fisherman's Village, Makassar, Indonesia. This study uses a qualitative approach to analyze women participation and contributions in the local economic sector and the challenges they face. Data was collected through in-depth interviews, observations, and documentation. According to the research findings, women in the Pattingalloang Fisherman's Village are essential in increasing family welfare through various economic activities such as seafood processing, industry, and small business. However, they continue encountering several challenges, including limited access to capital, education, and skills training. This study suggests that more comprehensive policy interventions and future strategies for empowerment be implemented to improve the financial capability and welfare of coastal women to reduce poverty, increase gender equality, and strengthen community resilience to economic shock. Thus, the economic empowerment of women in coastal areas can significantly contribute to local economic development and poverty alleviation.

Keywords: *Economic Empowerment, Coastal Women, Pattingalloang Fishing Village.*

9. SC-009

Sustainable Finance: Evidence from CSR Action for Economic Village Centre (Balai Ekonomi Desa) – Tuksongo in Indonesia

Gagaring Pagalung, Ayudyah Dian Imasari and Safaat Aufahasan Adzka

Balai ekonomi desa (Balkondes) or economic village centre boosts the local economy in a tourist village in Magelang, Indonesia. Magelang attracts local and foreign tourists as super priority tourist area in Indonesia, which is Candi Borobudur. Balkondes is a part of State- Owned Enterprises CSR Action that provides space for village governments and communities to develop economic potential in the village. In addition to boosting the local economy, the community is preparing to welcome and provide maximum service for tourists who come to their area. The increase in the number of tourist visits is expected to have a positive impact on improving the economy of the surrounding community. The purpose of Balkondes is to improve the quality of life of local people near the tourist village in Magelang. There have been 20 Balkondes made by different SOEs; however, this study will focus on Tuksongo – as a part from CSR Action of Telkom Indonesia. With this, the community can look forward to enhanced services and a better quality of life.

This research aims to investigate the impact of Balkondes on the local economy, focusing on the locals before and after the establishment of Balkondes. The data will be collected using a qualitative approach, which involves conducting interviews with the administrator, the worker, and nearby locals. Additionally, direct observation will be conducted to achieve the objectives. The collected data will be analysed using NVivo to generate information needed. The study is expected to have a positive impact on the village's economy and improve its quality of life since the Borobudur area is one of the most famous tourist spots in Indonesia. This is a win-win

solution where both villagers benefit from increased economic opportunities and tourists may enjoy enhanced services.

In conclusion, Balkondes in Magelang exemplifies a successful model of corporate social responsibility aimed at sustainable development. By focusing on economic empowerment and service enhancement in a tourist-driven region, Balkondes contributes significantly to the well-being of the local community while effectively fulfilling corporate social responsibility.

Keywords: *Sustainable Finance, Corporate Social Responsibility, Local Economic Development, Community Well-being.*

10. SC-010

Female Muslim Tourists' Preference During Educational Tourism Visits to Non-Muslim Destinations

Aisyah Tri Astari and Akhmad Farid Nugraha

Muslim tourists, unlike tourists in general, have unique needs they need to cater to during their travel, especially when visiting non-Muslim countries. Female Muslim tourists, specifically, have distinct needs from Male Muslims, which makes them require special treatment and understanding during their trip. This paper focuses on educational tourism and aims to understand the buying preferences and particular needs of female students as tourists during their educational tourism visits to Japan, which is one of the non-Muslim country destinations. This research employs an Exploratory sequential mixed-method approach that begins with a randomly distributed questionnaire to female students aged 15 to 24 from Indonesia. It is followed by in-depth interviews with female Muslim students who have experienced a study tour to Japan, providing a unique and authentic perspective on their experiences in a non- Muslim country destination. Furthermore, this research also presents a typology of motivators for Indonesian Female Muslim students' tourists, along with their detailed preferences and needs from an educational tourism provider. The results of this research can significantly enhance the development of an effective marketing strategy aimed at female Muslim students' tourist experience in the educational tourism industry applied in other non-Muslim destination countries.

Keywords: *Muslim Travel Motivation, Muslim Female Tourist, Muslim Tourist Preferences, Educational Tourism, Non-Muslim Destinations.*

11. SC-011

Private Final Consumption Expenditure Economic Growth of Penang, 1880-1939

Prashant Gupta

Introduction

The Straits Settlements were officially established as a British colony in 1826. Initially, they consisted of Penang (including Province Wellesley), Singapore, and Malacca. Later, the Dindings (now part of Perak) and the Cocos Islands were added. The Straits Settlements were administered as a single entity by the British East India Company until 1867, when control was transferred to the British Crown, making them a Crown Colony. Each settlement had its own local administration, but overall governance was centralized. Both Singapore and Penang served as important trading hubs for the British Empire (Chiang Hai Ding, 1963).

When Penang was established in 1786 by Captain Francis Light, it quickly became a significant trading post. Its free port status attracted traders from various regions, including the Malay

Archipelago, China, and India. Singapore was founded by Sir Stamford Raffles in 1819. Its strategic location at the southern tip of the Malay Peninsula and its free port status quickly drew in significant trade and investment.

Penang remained an important trading post, its economic growth was overshadowed by Singapore's meteoric rise. To understand the economic growth and significance of Penang this study was conducted.

Literature Review on the Quantitative Economic History of the Region

The studies on the economic history of Penang approached various aspects, ranging from trade, commercial activity, money, government finance, and financial development to economic conditions during the world depression in the early 1920s and 1930s. Apart from this, studies on demographic changes, labor conditions, infrastructure development in terms of construction of water supply and port facilities, as well as opium revenue collection by the British administration, were also conducted.

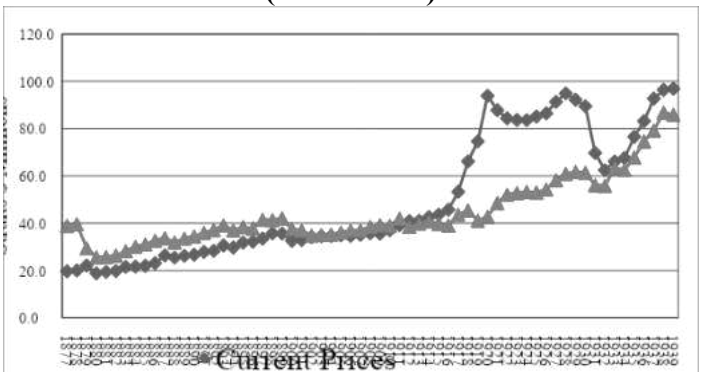
Research on the overall economic performance of the region was initiated by Sultan Nazrin Shah. He constructed the first historical GDP estimates of Peninsular Malaysia for the years 1895-1939 and investigated the empirical studies of economic growth of Peninsular Malaysia (Nazrin, Raja, 2000; Sultan Nazrin, 2017). Subsequently, Sugimoto attempted to construct historical GDP estimates for the years 1900-39 and 1950-60 and also conducted empirical investigations on the economic growth of Singapore from the viewpoints of economic instability and government fiscal policy. Researcher is employing similar strategy in data collection and analysis to conduct economic growth of Penang from 1880-1939.

For the construction of historical GDP estimates, the expenditure approach was applied, deriving figures for Private Final Consumption Expenditure, Government Final Consumption Expenditure, Gross Capital Formation, and Net Exports of Goods and Services. The year 1914 was selected as the base year for converting the estimated figures from current prices to 1914 prices.

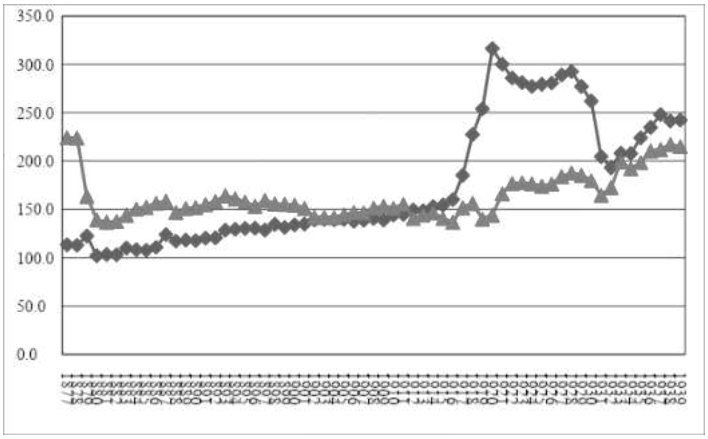
Preliminary Findings

Based on the preliminary estimates of Private Final Consumption Expenditure (PFCE) for Penang for the period 1880-1939, the gross and per-capita levels of PFCE remain constant growth and from 1900 onwards it increases steadily and pronounced after 1920.

Figure 1:
Private Final Consumption Expenditure of Penang, 1870-1939 as per current prices (1914 Prices)



Private Final Consumption Expenditure of Penang, 1870-1939 as per constant prices (1914 Prices)



In the upcoming conference, this paper will examine the result of GDP estimates by conducting consistency checks between estimated figures and official figures and also by comparing with available historical GDP estimates of other countries. Subsequently, possible reasons of upturns and downturns of each component of GDP for Penang are provided. Additionally, the overall pattern of GDP growth for Penang is commented upon.

12. SC-012

Explaining the Demand for Credit by Micro, Small, and Medium Enterprises in Indonesia (South Sulawesi Province Case)

St Farhana Putri Mountu Marsuki

MSMEs (Micro, small, and medium enterprises) are a productive business sector that should be developed to support macro and micro-economic development in Indonesia and the province of South Sulawesi and influence other sectors to develop. MSMEs are also considered one of the primary driving sources for the income distribution of the wider community, including as a labor absorber, GRDP growth, and progress of a region. This study comprehensively analyses the factors influencing the demand for MSME loans in South Sulawesi Province. The data analysis method employed the multiple linear regression method. The study utilizes a wide range of secondary data sources, including Bank Indonesia, BPS (Central Statistics Agency) of South Sulawesi Province, the South Sulawesi Provincial Cooperative Office, journals, and the results of previous research. The results of this study, based on a time series from 2002 to 2021, reveal that the variables of interest rates and GRDP growth have a negative and insignificant effect on the demand for MSME loans in South Sulawesi Province, while the variables of inflation and the number of MSME units have a positive and insignificant effect on the demand for MSME loans in South Sulawesi Province.

Keywords: *Demand for Credit, Interest Rates, Inflation, GRDP Growth, Number of MSME Units, South Sulawesi Province*

Track 4: Engineering, Manufacturing, and Construction

1. **SD-001**

   Comparative Analysis and Optimization of Energy Calculation for Green Building Certification

   Abdul Fatah Haron, Husam, Rambat, Shuib and Mizunoya Takeshi

   Most green building certifications are often rated on a scale of Certified, Silver, Gold, or Platinum, which are used mainly for benchmarking purposes. However, these green building rating levels do not always provide information on the actual energy performance of the certified building as performance indicator (Li et al, 2020). This paper presents a comparative analysis of the energy performance methodologies used in LEED (International), GBI (Malaysia), and CASBEE (Japan) to identify an optimized and easy-to-adopt method that could be clearer and more straightforward for use in building projects in determining energy efficiency and the incorporation of relevant green building strategies to demonstrate building energy performance (Gultekin, et al, 2013) and its potential toward near-zero emissions (Jamaludin & Li, 2023). By comparing the building energy consumption calculation methods used in LEED, GBI, and CASBEE, the study aims to provide insights into the effectiveness of green building strategies in lowering building energy consumption before the integration of renewable energy (Chen, et al, 2023). This can contribute to identifying best practices in energy efficiency for reducing carbon emissions in building projects and will be able to highlight best practices in energy efficiency for reducing carbon emissions, demonstrating the potential of green building certification as an effective indicator of building energy performance and their contribution to global sustainability initiatives. The findings can also serve as a showcase for green building certification as an effective building energy performance indicator towards lowering carbon emissions and contributing to reducing the overall environmental impact of building projects, in line with the global sustainability initiative.

   Keywords: *green building, energy performance, carbon reduction, near-zero emission, sustainability.*

2. **SD-002**

   Modified Five-Level LLC Resonant DC-DC Converter

   Mohamed Salem, Ali Bughneda, Amy Poh Ai Ling, and Dahaman Ishak

   A modified five level LLC resonant DC-DC boost converter with variable frequency and an integrated control method for the modulation index is proposed. To obtain optimum high efficiency, voltage gain, ZVS, and a wide load variation. The selected LLC tank, and converter parameters were analysed and emphasized in detail. Furthermore, the behaviour of the developed converter was investigated under varying load conditions at various input voltages. It was found that the control system responded to both changes successfully and maintained the value of the output voltage at its expected level by varying the switching frequency within a selected range. Also, the developed five-level converter differed in LLC resonant behaviour was investigated and approved by a comparison to its related works in literature. The theoretical results were validated through simulation using MATLAB-SIMULINK. Selected findings were discussed to portray the efficacy of the designed converter.

   Keywords: *Modified Five-Level Inverter (M5LI), LLC Resonant, Zero Voltage Switching (ZVS), Variable Frequency Control, DC-DC Converters*

3. **SD-003**

Analysis of Grasping Force of Irregular Shapes Object for Low-Cost 3D Printed Prosthetics Robotic Arm

Devin Babu, Abdul Nasir, Waheb A. Jabbar and Mohd Amir Shahlan Mohd Aspar

Additive manufacturing, particularly 3D printing, and computer-aided design (CAD) have been instrumental in recent advances in prostheses. This work focuses on using 3D printing to make personalized prosthetic limbs, especially for pediatric applications. Although the future looks bright, a lack of clinical proof and technical details prevents wider use. This study examines user input, 3D printing procedures, and design complexity, emphasizing both durability issues and useful advantages. Using bio-inspired design in 3D-printed upper-limb prosthetics, particularly hand prostheses, is a major area of focus. An innovative prosthetic hand with movable fingers was created by imitating the structure of human fingers. These prototypes demonstrated enhanced grasp adaptability and produced superior pinch force, providing reasonably priced and lightweight alternatives. In this study, three irregular-shaped objects have been tested to measure the grasping force with the properties of each object being detailed including several fingers used to grasp the irregular objects. The study concluded that the average total grasping force required to grasp irregular objects for 54 g of puzzle pieces is 0.514 N, for 107 g of books is 0.726 N and 3 g of balls is 0.694 N are the outcomes of the grasping

Keywords: *3D printing, children prosthetic hands, grasping irregular shapes.*

4. **SD-004**

Mathematical Modeling and Performance Analysis of Electromagnetic Suspension (EMS) Systems Using Taylor Series Expansion

A.Z.M. Amin, S. Amir and M.Z.M. Kamali

The advancement of automotive suspension systems plays a pivotal role in enhancing the comfort and performance of vehicles on diverse road profiles. This research aims to revolutionize car suspension technology by introducing an electromagnetic suspension (EMS) system. The impact on springs and dampers, in terms of time-varying stiffness, is investigated by replacing conventional springs with electromagnetic counterparts. A comprehensive mathematical model of the electromagnetic car suspension is formulated and analyzed using Newton's second law and combined with the Taylor expansion series. One mathematical method for determining the magnetic or electric field close to a source involves using a Taylor series expansion to represent the electric field near a point source. When the proposed EMS system was tested on a sedan model, the results showed a damped oscillation time of around five minutes and a maximum displacement amplitude of 0.8 units. Compared to the conventional method, the damper/spring force in the EMS system was observed to decreased linearly over a 20-minute period, ranging from 9 to -2 units. The significant advantage of the EMS suspension, which consists of magnetic dampers, over the conventional damper is that it provides a more stable ride for passengers, benefiting the car's driver. These findings demonstrate that EMS is a practical and efficient solution for providing more comfortable ride technology for future cars.

Keywords: *Electromagnetic suspension (EMS), Automotive, Ride quality, Newton law, Taylor expansion*

5. SD-005

Prediction of Palm Oil Mill Effluent Bioremediation by Immobilised Black Fungus using Artificial Neural Network

Azreen Farhana Mohd Hasnain, Jegalakshimi Jewaratnam and Paveethra Thegarathah

Due to the growing demand of palm oil causing the increase of palm oil mill effluent (POME) production, additionally the polluting characteristics of POME, bioremediation of POME has become a common topic of interest due to its cost efficiency, performance, and sustainability. An artificial neural network (ANN) model was developed to predict the bioremediation of POME by introduction of black fungus (Aspergillus niger) immobilised on coconut husk to separator sludge. A multilayer feedforward neural network (MFNN) model was developed using MATLAB software, and the performance of 12 backpropagation training algorithms from 6 different classes (gradient descent with momentum, self-adaptive learning rate, conjugate gradient backpropagation, resilient backpropagation, Bayesian regulation propagation, and quasi-newton) were compared and analysed. Datasets of experiment were extracted, divided, and implemented for the training, validation, and testing of the training algorithms, which included input data (temperature, agitation speed, fermentation duration, POME concentration) and output data (percentage reduction of COD and turbidity). The best performing training algorithm was determined based on the consistency of the model's output prediction by error evaluation models: mean squared error (MSE), root mean squared error (RMSE), mean absolute percentage error (MAPE), and mean absolute error (MAE). The study finds that Bayesian Regulation Propagation is the most suitable training algorithm for bioremediation of POME by immobilised black fungus, which resulted in the lowest error values of 1.173 (RMSE), 0.838 (MAPE), and 0.002 (MAE), and 0.383 (RMSE), 0.238 (MAPE), and 0.002 (MAE) for percentage reduction of COD and turbidity respectively. Comparison between actual and predicted outputs show that ANN model with structure 4-1- 15-2 trained using Bayesian Regulation Propagation algorithm is shows best performance in predicting the bioremediation of POME by immobilised black fungus with close accuracy based on lowest MSE of 0.009 at epoch 205.

Keywords: *bioremediation; POME; immobilised black fungus; Artificial Neural Network*

6. SD-006

Cooling System for HV Arc Flash Suit Wearer

Prashobh Karunakaran, M. Shahril Osman and Tonny Ling

High Voltage switching is very dangerous and has caused many fatalities among High Voltage (HV) Switching Personnel (SP) and much damage to equipment and downtime for consumers of electricity. Two of the most common sources of HV switchgear accidents are a lack of following safety protocols and an insufficient understanding of the HV electrical systems. But just as car drivers can avoid accidents after having a proper understanding of driving, so can HV personnel. Because HV switching accidents do happen, the SP are required to wear arc flash suits which were designed and built in temperate countries, but when such suits are used in Malaysia, the SPs sweat profusely even after a minute. It is very dangerous to work near HV equipment with such heat stress. To solve this problem a robust car air conditioner (A/C) system was driven with a 3Φ, 2 HP induction motor, and cool air is sent via a 6 m flexible pipe to go from the bottom of the arc flash suit to the chest level. This way many HV switchgears can be switched without moving the A/C system. But the A/C system is placed on a foldable cart which can be moved when needed. Because old car A/Cs can be acquired from scrap yards, the system can be replicated at low cost and one such system should be permanently placed in each substation. In the design and built-up of the system, the idea was to vary the speed of the compressor to vary the coolness of the air

coming out of the A/C. Therefore, the following parts were tried: initially a 1 Φ, 1 HP induction motor, then a 3 Φ, 1 HP, a 3Φ VFD capable of 1 HP. Then a 3 Φ 2 HP induction motor and a 3Φ VFD capable of 2 HP. Finally, it was discovered that the compressor only ran at the correct speed when connected directly to 3 Φ power. Then the way for the SP to vary the coolness is an air ball valve tied to the chest level of the SP.

Keywords: *HV switchgears, arc flash suit, HV switchgears, air conditioner, safety system*

7. SD-007

Industry-Infused Program: Bridging the Gap between Academia and Industry for Student and Academic Curriculum Enrichment

Rosmiwati Mohd-Mokhtar, Muhammad Nasiruddin Mahyuddin and Shahrel Azmin Sundi

The pivotal role of the academic institution, particularly in the engineering programme, is to foster engineering graduates with the requisite knowledge and skills, enabling them to thrive in the engineering sectors upon graduation. However, there is a mismatch between the higher institutions and the industries in issues such as the knowledge obtained at the university not aligning with the industry need, lack of industry practical skills, industrial training time being too short and many others. The industry-infused program is introduced to address the matters. The program exposes students to industry as early as their second year in pre-internship mode. Early industrial exposure would elevate the students' mindsets to be industry-ready while still taking the courses at university, thereby exerting a profound impact on the students' understanding of the essence of complex engineering problem-solving already embedded in the syllabus. It is then followed by the compulsory industrial training period at the end of their third-year studies. During the final year of studies, the students will be exposed to teamwork and individual over the industry-based integrated design project and industry-based final year project, respectively. The students can also fully conduct the final year project in the industry. In addition, the industrial trip and guest lecturers from industries are embedded in the curriculum. The outcome has benefitted the three main stakeholders: students, industry, and the institution. Students who graduate from the program become industry-ready talent with the necessary sharp and smart skills. The program has been shown to improve graduate employability by securing tentative engineer positions through an early engagement with industrial collaboration during their study year. The hired graduates possess adequate knowledge and relevant skills related to the industry's nature of demand, operation, and environment. The institution's significance is becoming more imminent as the tertiary education provider and complementing partner providing outstanding student talent guided by quality academic staff. The early batches of students enrolled in the program have shown promising results such as increasing graduate employability, providing an avenue to build reinforcing trust in the context of institution-industry relations and nurturing highly competent engineering graduates.

Keywords: *Industry-infused program, industry-driven talent, industry engagement, student, academic curriculum*

8. SD-008

SafeAir: Air Pollution Detection and Monitoring System for Industrial Area

Izzul Akmal Ab Gapar, Noorazliza Sulaiman and Abdul Nasir Abd Ghafar

Air pollution particularly in industrial areas is one of the critical issues in Malaysia. Primarily originating from human activities such as industrial processes, transportation, and fossil fuel combustion, these pollutants include car-bon monoxide (CO), sulphur dioxide (SO2), nitrogen dioxide (NO2), and particulate matter. Malaysia, with its growing industrial sector, faces

escalating air pollution challenges, especially in regions with high industrial activities. In industrial areas, the absence of an integrated and reliable system for detecting pollutants, such as CO, SO2, NO2, and particulate matter, poses substantial health and environmental risks. Timely and accurate monitoring is crucial for preventing adverse health effects on workers and nearby communities. Hence, a prototype called SafeAir is developed with aims to address the critical need for a comprehensive detection system to ensure a safe industrial environment. SafeAir is an air quality monitoring system based on the air quality index to detect carbon monoxide gas, sulphur dioxide, nitrogen dioxide, and particulate matter and equipped with a user-friendly monitoring application with established notification system. The prototype integrates various gas sensors to measure pollutants, facilitating real-time data accessibility and notification through a mobile application. The sensors detect the presence of the pollutants, and if the concentration of the pollutants exceed the predetermined safe concentration, the data can be monitored through Blynk application and alert notification is sent to Blynk and email for further action from the authority. SafeAir has successfully shown the ability to detect and send alert notification through Blynk and email once the concentration level of the pollutants exceeds the safe values. This shows the effectiveness of the system to enhance the safety, well-being, and environment by contributing to pollution mitigation strategies for industrial areas.

Keywords: *air pollution, detection system, monitoring system, notification system, industrial*

9. SD-009

Effect of Green Building Design on Fire Safety
Muhammad Badrul Amin bin Mahosin and Masayuki Mizuno

The growing trend of green buildings worldwide is recognized for its environmental benefits and energy efficiency. However, recent fire incidents in buildings that used green building features such as the Downtown Dubai high-rise building in 2015 have raised significant safety concerns. This study investigates the impact of green building designs on fire safety, particularly how these designs affect fire safety performance during a fire event, including the spread of smoke and fire within the buildings. The objectives are to identify green building features that impede firefighting efforts and to propose design solutions that are required from a fire safety engineering perspective, even if the fire safety codes do not mandate them. Two prevalent green building designs, the atrium and double skin façade, were selected for analysis due to their widespread use in contemporary construction. The simulation software was utilized to predict the smoke movement within these buildings. The simulations revealed potential fire hazards and assessed the effectiveness of existing fire protection measures. Calculations were conducted to substantiate concerns regarding the fire safety of these designs. The findings indicate that certain green building features can complicate the achievement of fire safety; for instance, large atriums and double-skin facades allow smoke generated during a fire to flow to other floors. To mitigate these risks, we recommend enhancing smoke control systems in atriums, and designing double-skin façades with accessible firefighting provisions. These improvements can bolster fire safety performance without compromising the environmental advantages of green buildings. In conclusion, while green building designs present unique fire safety challenges, careful planning, and optimized design strategies can achieve environmentally sustainable and safe buildings for occupants. This research underscores the importance of integrating fire safety considerations into green building designs to ensure occupant protection and compliance with safety standards. Future research should focus on developing advanced fire protection technologies and updating building codes to address these evolving challenges.

Keywords: *Green Building, Fire safety, Atria, Double skin façade*

10. SD-010

Effect of Titanium Implant Plate Fixation with Different Stiffness on Defect Healing of Rabbit Femur Bone

Norain Binti Abdullah, Daisuke Miyazaki, Ei Yamamoto, Kosuke Ueki, Masaaki Nakai and Tamio Ida

Titanium alloy such as Ti-6Al-4V ELI (Ti-64) has been used widely as implant plate. However, vanadium element in this alloy gains concerns among researchers because it is said to be a toxic element. Because of that, a toxic-free alloy, Ti-29Nb-13Ta-4.6Zr (TNTZ) has been developed. Not only it is toxic-free, TNTZ has lower elastic modulus (60 GPa), when compared to Ti-64 (110 GPa). It has been discussed among researchers that low elastic modulus of implant plate can prevent stress shielding phenomenon after long-term implantation. In contrast, the early stage of healing requires mechanical stability, which has not been properly discussed. Present study aims to investigate the effect of implant plate stiffness on early stage of healing to discuss further the aspect that is required for an implant plate to possess a suitable characteristic to be used safely. Ti-64 and TNTZ are being used as implant plate with size of 25.0 mm x 5.0 mm, and thickness of 1.5 mm and 0.5 mm. Half- cylindrical shape of rabbit's femur bone was removed, and then the implant plate was fixed on the bone by two screws on both ends. After 3 weeks of healing, the bone was harvested. The new bone formation was observed by using scanning electron microscope (SEM), image analysis was carried out, and bone formation pattern was discussed. As a results, new bone (refer as callus) formation on defect is similar under all implant plate, but varies on region other than defect. When high stiffness of implant plate (Ti-64; thickness of 1.5 mm) is being used, asymmetric callus formation was observed, due to the interfragmentary movement of bone (IFM) that was refrained by a rigid fixation system. On the other hand, when low stiffness of implant plate (TNTZ; thickness of 0.5 mm) was used, excessive callus formation was seen, due to unstable fixation system. Overall, suitable stiffness of implant plate is required so that a regular callus formation can be obtained to ensure a good fracture healing.

Keywords: *titanium alloy, callus formation, elastic modulus, stiffness, mechanical stability*

Track 5: Health and Medicine

1. SE-001

Halal Integrity in Biotech-Driven Pharmaceuticals: Advancements and Quality Standards

Sylvia Sandanamsamy, Sharipah Razali, Sharon Fatinathan and Ahmad Fuad Shamsuddin

Halallan Thoyibban is a powerful product label that enhances the wholesomeness, quality, and integrity of any product. Halal is not just limited to eating and drinking but also encompasses earning a livelihood, dress code, and interactions with others. Therefore, the concept of halal extends beyond religious practices. Halal products promise safety, hygiene, quality, and efficacy as products have to meet the highest quality standards and rigorous regulations. These products are not only permitted for Muslims but also for non-Muslims to use. Biotechnology has emerged as the new frontier in pharmaceuticals ranging from the production of insulin using bacteria, gene editing, and genetically modified organisms. It has seen significant advancements in recent years that enables the production of high-quality and effective drugs. Growing with the latest advances in pharmaceuticals, many questions arise on whether these modern pharmaceuticals still abide by the promises of Halallan thoyibban and do what is called permissible and legitimate and is not contrary to God's instructions. It is imperative to address the unspoken issues related to halal medicine as they have the potential to cause significant problems in the future. This review

discusses the latest advancement of biotechnology in pharmaceuticals and how these pharmaceutical products comply with the promises of Halallan thoyibban. As there is a growing need for halal pharmaceuticals globally, this venture has to explicitly ensure that pharmaceutical products meet the highest standards of safety, efficacy, and quality.

Keywords: *Halallan Thoyibban, biotech, pharmaceuticals, quality, standard*

2. SE-002

Multidomain Intervention for Risk Reduction Intervention for Dementia among Older Adults in Asia: Can We Do it?

Suzana Shahar, Ong Ying Qian, Pavapriya Ponvel, Arimi Fitri Mat Ludin, Devinder Kaur Ajit Singh

Globally, nearly 50 million people are living with dementia, and it is predicted that this number will reach nearly 82 million in 2030 and over 152 million in 2050 unless interventions are identified and implemented to prevent or delay onset, slow progression, or stop Alzheimer's disease (AD) and other disorders that cause dementia. The age-adjusted incidence of dementia has been reported to decline, with stable or reduced prevalence, in Western countries, however, it is on the rise in some Asian countries. The risk factors of dementia is multifactorial, thus, the Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) represents the first large, long-term randomized controlled trial (RCT) demonstrating that a multidomain lifestyle intervention (vascular management, physical activity, diet, cognition and psychosocial) can improve cognitive function in older adults at risk of developing dementia. The potential of multidomain interventions for dementia risk reduction and prevention needs further validation, and there is a need to test and adapt these approaches in diverse geographical, economic, and cultural settings. The Worldwide FINGERS Network was established in 2017, as an international and interdisciplinary network aiming to reduce risk of dementia through multidomain intervention. Countries in Asia Pacific including Japan, China, Taiwan, Singapore and Malaysia participated this network. The progress of the trials are at various stages. In Malaysia My AGELESS Trial was conducted with the aim to determine the effectiveness of a 24-month multidomain intervention on reduce risk of dementia through reversal of cognitive frail (CF). A total of 957 older adults were screened, 38.9% met eligible criteria and 28.5% agreed to participate and randomised to either intervention (n=53) or control (n=53) group. Illness or health perception influenced interest to participate in lifestyle medication program and adherence is the least for more extensive mode of intervention. Preliminary findings indicated that at 12 month intervention shows promising results for improvement of selected cognition, physical function, nutrient intake, and brain activation. There is a need to understand the factors influencing the success of multidomain intervention among aging individuals in Asia to better translate this proof concept for the benefit of the population.

Keywords: *Aging, Asia, Multidomain, Intervention, Dementia*

3. SE-003

Psychometric Properties of the Genitourinary Syndrome of Menopause Symptoms and Treatment Acceptability Questionnaire (GSM-SVTAQ)

Mohammed M Hassanein, Hasniza Zaman Huri, Abduelmula R Abduelkarem

BACKGROUND: Despite the availability of many subjective measurement tools for the genitourinary syndrome of menopause (GSM), the lack of a comprehensive tool that assesses all aspects of GSM and its treatments has hindered the successful integration of any of these tools into clinical practice. **AIM:** This study aimed to quantitatively evaluate the psychometric

properties of the Genitourinary Syndrome of Menopause Symptoms and Treatment Acceptability Questionnaire (GSM-SVTAQ), a novel multidimensional self-reported patient-reported outcome measure (PROM). **METHODS:** This multi-site cross-sectional study was conducted in three tertiary hospitals in the United Arab Emirates (UAE) between June and September 2023. A purposive sample of peri- and postmenopausal women with urogenital symptoms was recruited. The measurement of psychometric properties included face, content and reliability testing and a structural equation modelling was used to test the construct and predictive validity. Data were analysed using the R software version 4.0 and the SmartPLS software version 4.0.9.8. **RESULTS:** A total of 72 participants were included in reliability testing and 351 in the construct and predictive validity assessments. The GSM-SVTAQ demonstrated excellent content validity and reliability. For the symptom burden, health-related quality of life (HRQoL) and treatment acceptability domains, the content validity indices and Cronbach's alpha were (0.926, 0.939), (0.875, 0.947), and (0.824, 0.855) respectively. The GSM-SVTAQ constructs established convergent and discriminant validity (average variance extracted > 0.50 and heterotrait-monotrait < 0.90, respectively). Predictive validity was supported by adjusted coefficient of determination (R2) values of 0.377, 0.282, and 0.169 for emotional, physical, and sexual functioning, respectively. **CONCLUSION:** The findings of this study highlighted the importance of patient-reported outcomes and the inclusion of patients in all stages of the development of PROMs. The GSM-SVTAQ provides a benchmark for the comprehensive assessment of menopausal urogenital symptoms, related treatment aspects and the impact on HRQoL and emphasizes the need to shift perspectives toward more patient-centred care.

Keywords: *Acceptability, Genitourinary Syndrome of Menopause, Reliability, Vaginal Treatments, Validity*

4. SE-004

Molecular Prevalence of Zoonotic Malaria in Indonesian Kalimantan Provinces Bordering Malaysian Borneo

Diana Natalia, Willy Handoko, Sari Rahmayanti, Tri Wahyudi, Khamisah A Kadir, Dayang SA Mohamad, Ayu AA Rashid, Paul CS Divis

Over the past 20 years, Kalimantan has seen a remarkable decline in malaria due to Indonesia's national strategic plans and policies against malaria. This low prevalence, however, contrasts sharply with Plasmodium knowlesi infections, which continue to be prevalent throughout Malaysia Borneo. Given that both regions have a similar epidemiological risk of zoonotic malaria infection and share the same natural habitat, this situation appears incongruous. A molecular approach was applied for active and passive malaria surveillance in West, East and North Kalimantan provinces bordering Malaysian Borneo from June 2020 to April 2021, as well as a questionnaire survey regarding factors contributing to potential zoonotic malaria transmission in each household. Blood samples were taken from 1,125 respondents aged 1 to 87 years old who attended health facilities and from those who lived in malaria-risk areas. Phylogenetic analysis of SSU rRNA (small subunit ribosomal RNA) genes revealed that the prevalence of malaria was low (0.7%) with four human Plasmodium sp infections (2 P. vivax and 2 P. malariae), three simian Plasmodium infections (2 P. knowlesi and 1 P. inui) and one unidentified species. From 639 respondents representing each household, 64.2% of respondents slept at home every night, 63.8% lived more than 500 meters away from the forest, 36.2% of respondents lived near or within the forest and 15.8% experienced the presence of monkeys within 500 meters of their house. This study emphasises the necessity of conducting extensive surveys to investigate the disparity between the low zoonotic malaria infections in these regions and those in Malaysian Borneo.

Keywords: *Plasmodium knowlesi, Plasmodium inui, malaria, Kalimantan border, Malaysian Borneo*

5. SE-005

Sea Urchin Gonads: A Hidden Treasure Against Obesity? A Literature Review on Anti-Inflamatory Potential and Benefits

Arlina Wiyata Gama, Suryani As'ad and Gemini Alam

Obesity is a global health crisis that relates to significant health and economic consequences. Chronic inflammation is recognized as a critical driver of obesity and its associated comorbidities. Sea urchin gonads, a delicacy in some cultures, possess unique bioactive compounds with potential anti-inflammatory properties. This paper focuses on the scientific evidence for the anti-inflammatory effects of sea urchin gonads and their potential application in preventing obesity. It examines in-vitro and in-vivo studies investigating the mechanisms by which sea urchin gonads may modulate inflammatory pathways and impact weight gain. This paper also discusses the safety and feasibility of incorporating sea urchin gonads into functional foods or nutraceuticals for obesity prevention. By critically analysing the existing research, this paper aims to unveil the hidden potential of sea urchin gonads as a weapon to resist obesity and pave the way for future research in this compelling specialization.

Keywords: *Sea Urchin Gonads, Obesity, Anti-Inflamatory Effect, Functional Foods, Nutraceutical*

6. SE-006

Characterisation of Pteropine Orthoreovirus Oncolytic Activity Against Leukaemia Cells and Cancer Stem Cells

Ghee Khang Ong, Zhen Yun Siew, Voon Kenny, Pooi Pooi Leong and Siew Tung Wong

The study of Pteropine orthoreovirus (PRV) as a promising candidate for oncolytic virotherapy has gained attention since the discovery of its cytopathic effect (CPE) on solid tumours. This research experiment focuses on evaluating the oncolytic effect of a subtype of PRV, Sikamat virus (PRV7S) against acute myeloid leukaemic cell line (THP-1 cells) with its induced pluripotent cancer stem cells (AML-M5 iPSCs), and chronic myeloid leukaemic cell line (K562 cells). MTT assay was performed to determine cell viability, whereas flow cytometry analysis confirmed cell apoptosis in THP-1, AML-M5 iPSCs, and K562 cells. Viral replication and kinetics of PRV7S were assessed using extracellular viral titre TCID50 assay and qPCR intracellular viral RNA quantification. mRNA sequencing and human cell death biomarker screening array were performed to determine differentially expressed genes and proteins which contribute to cell apoptotic mechanisms of PRV7S. After 5 dpi, MTT assay indicates PRV7S significantly induces CPE on leukaemic cell lines and cancer stem cells, which tally with the increased percentage of apoptotic leukaemic cells assessed by flow cytometry analysis. TCID50 assay and qPCR demonstrated that the leukaemic cells support viral replication of PRV7S, with no persistent infection observed. mRNA sequencing and human cell death biomarker screening array reveal the involvement of pro-apoptotic genes and proteins (Fas, caspase-3, caspase-7, Bak, Bax) in the PRV7S-induced cell death pathway. The current study highlights that PRV7S could be a potential alternative treatment for treating non-solid tumours. However, these findings do not necessarily apply to other types of leukaemia. This warrants future research to explore the complex signalling pathways of oncolytic PRV and develop measures to circumvent the host antiviral response.

Keywords: *oncolytic virus, pteropine orthoreovirus, acute myeloid leukaemia, chronic myeloid leukaemia, apoptosis*

7. SE-007

Impact of Glycation on Physicochemical Properties and Digestibility of Whey Protein Isolate under Simulated Infant Gastric Conditions

Norliza J., Nur Liyana A. M. and Sarizan S.

In vitro digestion models that simulate human alimentary processes are indispensable for evaluating food processing effects and structural changes during digestion. While extensive research exists on whey proteins, studies specifically investigating the impact of glycation on whey protein isolate (WPI) digestion in vitro are scarce. This study aimed to assess the physicochemical properties and digestion behavior of WPI glycated with glucose via dry heating Maillard reaction using simulated infant gastric conditions. Non-glycated WPI and WPI-glucose conjugates were analyzed following incubation at 40°C with A w = 0.80 for 0, 1, and 2 days. Physicochemical analyses included colorimetric assessments (L*a*b* values and browning intensity at 294 nm and 420 nm) and OPA analysis indicating 53% conjugation on day 1, suggesting effective inhibition of advanced Maillard reaction product formation. Subsequently, both WPI forms underwent simulated in vitro gastric digestion at pH 3 with pepsin. SDS-PAGE analysis of digesta revealed that neither non-glycated WPI nor WPI- glucose conjugates were efficiently hydrolyzed by pepsin. These findings underscore the need for further research to elucidate how protein-disaccharide glycates affect in vitro infant gastric digestion, emphasizing the critical role of optimal pH control in simulation experiments.

Keywords: *whey protein isolate, glycation, physicochemical properties, digestibility and simulated infant gastric conditions.*

8. SE-008

Nutrient Content, Physical Properties, and Sensory Evaluation of Crackers Incorporated with Red Seaweed Gracilaria changii

Patricia Matanjun, Michelle Wong Kar Mun, Adibi Rahiman Md Nor and Jalaludin Kassim

Many snacks in the market lack nutritional value, whereas seaweed-based products, renowned for their nutrient-rich content and health benefits, are increasingly utilised to produce healthier snack choices. This study aimed to determine the best formulation for the development of crackers incorporated with Malaysian red seaweed Gracilaria changii. G. changii powder with different concentrations (2.4% - 9.6%) was incorporated for the development of crackers by substitution with wheat flour. It was found that a concentration of 2.4% G. changii powder was preferred by the sensory evaluation panellists. The physical analyses revealed that the preferred seaweed crackers were those that were lighter in colour, had less red and yellowness, and had a good texture for hardness and fracture-ability. The water activity (0.33) of the crackers was ideally low to prevent the growth of microorganisms. The best formulation proceeded with nutrient composition analyses. It was found that the nutritional values of seaweed crackers were significantly ($P<0.05$) different from the control crackers (without seaweed); where the seaweed crackers had an increment in ash (from 4.98% to 5.62%), dietary fibre (from 3.30% to 7.80%), protein (from 8.42% to 8.63%), moisture (from 6.65% to 7.06%), and reduction in fat (from 0.58% to 0.32%) and carbohydrate (from 76.16% to 70.57%) as compared to control crackers on a dry weight basis. The energy provided by the seaweed crackers was 335.28 kcal g -1 . In conclusion, this study demonstrated that G. changii powder can be effectively utilised for the development of healthy crackers.

Keywords: *Seaweed, Gracilaria changii, crackers, snacks.*

9. SE-009

Health Benefits of Sockeye Salmon Consumption in Young Japanese Women
Muhammad Umair, Uenishi Kazuhiro, Nakamura Yukino, Oda Emiko, Nakayama Miho, Harada Wakana and Mogi Yukimi

Sockeye salmon (Oncorhynchus nerka), renowned for its bright red flesh and high nutrient density, is rich in functional components such as vitamin D, astaxanthin, EPA (eicosapentaenoic acid), and DHA (docosahexaenoic acid). This study examines the effects of sockeye salmon consumption on various health markers, including serum 25-hydroxyvitamin D levels, antioxidant capacity, dynamic visual acuity, and blood fatty acid profiles, in young Japanese women to determine its potential in promoting overall health, improving physical performance, and preventing chronic diseases. Twenty-two young Japanese women aged 20-30 years were randomly assigned to two groups. One group consumed 80 grams of sockeye salmon three times a week for eight weeks, while the control group maintained a normal diet without additional salmon intake. Baseline measurements of serum 25-hydroxyvitamin D (25(OH)D), antioxidant capacity, dynamic visual acuity, and blood fatty acid fractions (EPA and DHA) were performed on all participants. Antioxidant capacity was assessed using the biological antioxidant potential (BAP) and reactive oxygen metabolite derivative (d-ROMS) tests. These parameters were reassessed at 4 weeks and at 8 weeks. Dynamic visual acuity was assessed using specialized visual acuity tests, and blood samples were analysed for vitamin D and fatty acid profiles. Statistical analyses compared within-group and between-group changes. The intervention group, which consumed 80 grams of sockeye salmon three times a week, had significantly higher serum 25(OH)D levels than the control group, which decreased after the intervention. In the intervention group, EPA levels increased slightly, and the EPA/AA ratio improved significantly, indicating a favourable change towards reduced inflammation. Conversely, in the control group, the EPA/AA ratio decreased, suggesting a shift towards increased inflammation and essential fatty acid imbalance. This study reveals several important findings regarding the health effects of sockeye salmon consumption in young Japanese women. Regular consumption of sockeye salmon significantly increased serum 25- hydroxyvitamin D levels, enhancing vitamin D status and potentially improving bone health and immune function. Antioxidant capacity measured by BAP showed a trend towards improvement in the intervention group, indicating that astaxanthin in sockeye salmon effectively reduces oxidative stress. The intervention group showed favourable changes in the EPA/AA ratio, suggesting a possible protective effect against inflammation and cardiovascular disease.

Keywords: *Salmon, Japanese, Women*

10. SE-010

Podoplanin-expressing Inflammatory macrophages in Chlamydia infection
Wong WF, Cheong HC and Looi CY

Genital Chlamydia trachomatis infection remains a major health issue as it causes severe complications including pelvic inflammatory disease, ectopic pregnancy and infertility in females as a result of infection-associated chronic inflammation. This study investigated the expression level and function of podoplanin, a transmembrane protein in a C. trachomatis infection model. C57BL/6 mice infected with the mouse pathogen Chlamydia muridarum were examined intermittently from days 1 to 60, and the expression of podoplanin on the inflammatory macrophages (CD11b+ CD11c+ F4/80+) were investigated. Our findings demonstrated an increased CD11b+ cell volume in the spleen at day 9 after the infection, with augmented podoplanin expression, especially among the inflammatory macrophages. A large number of

podoplanin-expressing macrophages were detected in the genital tract of C. muridarum-infected mice. Furthermore, analysis of the C. trachomatis-infected patients demonstrated a higher percentage of podoplanin-expressing monocytes than that in the noninfected controls. Using podoplanin-knockout RAW264.7 cell model, we reported that macrophages deficient in podoplanin displayed defective migratory function toward C. trachomatis-infected HeLa 229 cells. Lastly, using immunoprecipitation-mass spectrometry method, we identified two potential podoplanin interacting proteins, namely, Cofilin 1 and Talin 1 actin-binding proteins. The present study reports a role of podoplanin in directing macrophage migration to the chlamydial infection site.

Keywords: *Chlamydia trachomatis, Macrophages, Podoplanin, Sexually transmitted infection*

11. SE-011

Prevalence of Possible Depression and Anxiety Illness Among Pre - University Students in Malaysia; A Pilot Study

Luqman Hafidz Mohamed, Mohd Farid Jaafar Sidek and Muhammad Firdaus Zulkifli

Mental health significantly influences our social interactions and responses to those around us. Maintaining good mental health facilitates the development of positive and meaningful relationships. This is closely related to our communication skills, the establishment and maintenance of healthy boundaries, and our ability to empathize with others. PHQ-9 is a widely used validated depression screening tool consisting of nine questions that assess severity and frequency of depressive symptoms. GAD-7 is a validated questionnaire used to assess generalized anxiety disorder, consisting of seven questions measuring severity and frequency of anxiety symptoms. Malaysia is experiencing a rise in mental health issues among higher education students due to academic pressures, financial burdens, and adaptation challenges. The COVID-19 pandemic has exacerbated stress, anxiety, and depression. Despite efforts by the government and universities to improve mental health services and awareness, there is still a need for comprehensive strategies to support students effectively. Therefore, it is essential to understand the mental health status of students at the tertiary education level. Thus, this paper aims to examine the relationship between individual characteristics, behaviors, and mental states of tertiary education students using the PHQ-9 and GAD-7 assessments. A sample of student respondents from the Centre for Foundation Studies at the International Islamic University Malaysia, batch 2023/2024, was utilized for this study. A voluntary sampling method was employed, wherein students completed a survey form comprising three main constructs: demographic characteristics, behavioural patterns, and anxiety and depression. The data were analyzed using descriptive statistics and Pearson correlation coefficients to identify potential relationships between variables. Subsequently, multiple linear regression analysis was conducted. A high response rate was observed among female students, those enrolled in science programs, individuals without physical disabilities, students who consumed two meals per day, those who engaged in less than 10 hours of self-study per week, and those experiencing moderate levels of stress. Based on the PHQ-9 test findings, 34.1% of respondents exhibited mild depression, while 26.8% showed minimal depression. The results from the GAD-7 test indicated that 36.6% of respondents experienced minimal anxiety, and 31.7% had mild anxiety. Result - Gender, height, BMI, meal intake, hours of study, and stress level have statistically contributed to the severity of anxiety and depression.

Keywords: *Depression, Anxiety, PHQ-9, GAD-7*

Track 6: Cross-disciplinary and Other Emerging Areas

1. **SF-001**

Integrating Society 5.0 and AI Technologies in Management of Technology Education

Zulhasni Abdul Rahim and Muhammad Saqib Iqbal

This study investigates the incorporation of Japanese Society 5.0 concepts into the curriculum development of technology management education programs, emphasizing the adoption of artificial intelligence (AI) technologies. Utilizing a Delphi study with thirty expert panellists and a comprehensive literature review, this qualitative research aims to integrate human-centric and AI-driven technologies into education curricula to enhance technical literacy, multidisciplinary collaboration, and AI competency. Guided by the theoretical framework of Society 5.0, which envisions harmonious integration of advanced technologies to improve human well-being, the findings reveal that implementing these concepts, alongside AI, significantly boosts students' preparedness for the demands of a digitized and AI-augmented society. Highlighting the need for curricula that reflect the evolving technological landscape and societal needs, this research contributes to the ongoing academic discourse on integrating AI in education and its broader implications for future-ready education. This study used the fuzzy Delphi analysis to explore incorporating Society 5.0 concepts and AI technologies into technology management education. The findings highlight the urgent need to update curricula with multidisciplinary approaches, enhanced digital and AI literacy, and ethical considerations. Implementing these changes will better prepare students for a rapidly evolving, AI-augmented technological landscape. The study underscores the importance of aligning educational methods with Society 5.0 and AI advancements to cultivate ethically aware, technologically proficient individuals. Future research should measure the impact of these curricular changes on student outcomes, such as employability and innovation. Comparative studies across cultures could further examine the global adaptability of these educational concepts. Academic institutions should update curricula and strengthen industry partnerships to ensure relevance and practical insights.

Keywords: *Society 5.0, Artificial Intelligence, Management of Technology, Education.*

2. **SF-002**

A Social Media Analysis of Malaysian Students' Aspirations for Higher Education in Japan

Shazlinda Md Yusof

This study examines the digital discourse surrounding Malaysian students' pursuit of higher education in Japan, as observed in a dedicated Facebook group. Through a comprehensive analysis of user-generated content, we explore the motivations, challenges, and expectations of prospective and current Malaysian students in Japan, as well as the experiences of alumni. Our research reveals a complex ecosystem of educational pathways between Malaysia and Japan, heavily influenced by government-sponsored programs and shaped by linguistic and cultural factors. We identify key trends in preferred fields of study and explore how these preferences align with perceived career opportunities both in Japan and Malaysia. The study also uncovers potential biases and limitations within this discourse, including an overemphasis on certain programs and fields of study, possible unrealistic expectations, and the risk of overlooking alternative educational pathways. We discuss the implications of these findings for cultural exchange, brain drain concerns, and the long-term impact on Malaysia-Japan relations. By analysing this digital community, we gain insights into how social media platforms facilitate

information sharing and community building among international students. This research contributes to our understanding of the role of digital spaces in shaping cross-cultural educational experiences and expectations. Our findings have significant implications for educational policymakers, university recruiters, and cultural exchange programs, offering a nuanced view of the aspirations and concerns of Malaysian students considering Japan for their higher education. This study also provides a foundation for further research into the evolving landscape of international education in the digital age.

Keywords: *Malaysia-Japan relations, higher education, social media analysis, international students*

3. SF-003

Choreography and Space in Traditional Arts: A Pragmatist Exploration Using Motion Capture Technology

Syafiq Faliaq Bin Alfan

This study employs a pragmatist philosophy to examine the application of motion capture technology in understanding the choreographic use of space within traditional performing arts, focusing on Mak Yong and Japanese Noh. By integrating empirical motion capture data with theoretical insights from Arabella Stanger on dance dynamics and Henri Lefebvre on spatial theory, the research scrutinizes the relationship between performers' movements and their spatial environments. This approach reveals how these traditional dances not only reflect but also communicate complex cultural narratives through their choreography. The study highlights motion capture's utility not just for recording but also for interpreting these dynamics, thus offering a method that enriches our understanding of cultural performances. The findings advocate for motion capture as a critical tool for cultural preservation, suggesting it can significantly enhance our interpretation and retention of intangible cultural heritage. This research underscores the importance of using technology to bridge the gap between quantitative data and qualitative cultural insight, contributing to the broader discourse on digital humanities and the preservation of cultural identities.

Keywords: *Motion Capture Technology, Pragmatism, Cultural Preservation, Spatial Dynamics, Intangible Cultural Heritage.*

4. SF-004

Evaluating the Feasibility of Eusideroxylon Zwageri (Sarawak Belian Wood) for High-Performance Bicycle Frame Construction

Muhammad Firdaus Abong Abdullah, Mohamad Suffian Abdul Kadir, Hasrunnaim Hasan, Ellisha Eling

The evolution of bike frame materials has advanced markedly from traditional wood to state-of-the-art composite materials, which offer qualities akin to aerospace materials, where lightweight and high strength are paramount. Despite these technological advancements, some bike designs persist in utilizing natural materials like wood for the core frame. Wooden frames can be constructed from solid, laminated, or engineered wood. Recent advancements in adhesives and fabrication techniques have reinforced wood as a viable option in modern bike frame design. This study evaluates a novel alternative hardwood material, Eusideroxylon zwageri, commonly known as Sarawak Belian Wood, native to Sarawak, Malaysia.

Comprehensive mechanical testing was conducted on Sarawak Belian Wood, including tensile tests, static bending tests, and compression tests (parallel and perpendicular to grain). The results

indicate that the material exhibits consistent mechanical properties, despite some variations attributable to sample preparation, inherent material characteristics, or testing conditions. The material demonstrates high bending stiffness, suggesting its potential as a promising candidate for bike frame design in terms of rigidity and responsiveness. However, its lower tensile modulus and moderate compressive strength highlight potential limitations, especially in components subjected to tension or perpendicular compression. The observed variability in bending modulus necessitates stringent quality control to ensure reliability.

Overall, while Sarawak Belian Wood shows potential for use in bike frames, additional properties such as fatigue resistance, weight, and manufacturability must be considered. Further testing and design adjustments are essential to optimize the material's performance for this application. Integrating composite technology may also be explored to enhance the overall performance of the bike frame.

Keywords: *bike frame, Belian wood, mechanical testing, design, performance*

5. SF-005

Revealing the Secret Behind Chicken Comb: Detecting Chicken Disease Infection through its Optical Chromaticity

Pin Jern Ker, Mohd Anif AA Bakar, Shirley GH Tang, Fatin Nursyaza Arman Shah, Mohd Zafri Baharuddin and Abdul Rahman Omar

Manual observation and confirmation through extensive laboratory tests for the detection of bacteria- or virus-infected chicken often lead to late detection and disease outbreak. This study aims to study the optical chromaticity of chicken comb for the early detection of disease infection in broiler chicken. In phase 1 of the project, the distinctive features of the chromaticity of the chicken comb were extracted using the CIE XYZ color space to classify healthy and infected chickens using machine learning models. In phase 2, an experimental chicken trial was carried out for 50 days and the chickens were infected with the Newcastle Disease Virus (NDV). Surveillance cameras with internet connections were set up inside the chicken cages to capture the chicken images without human intervention, simulating actual farm conditions. Morphological and chromaticity features were extracted at 36 hours post-infection (after NDV infection) with a 12-hour time step onwards. Chromaticity analysis in phase 1 showed that the color of the infected chicken's comb changed from red to green and yellow to blue. The development of various ML using the chromaticity features showed that Logistic Regression (LR), Support Vector Machine (SVM) with Linear and Polynomial kernels performed the best with 95% accuracy. For Phase 2, it was established that within 36 hours of NDV-infection, LR and SVM models were able to detect infected chickens at an accuracy of 78.33% and achieved 82.39% after feature optimization. Beyond 72 hours of infection, the best detection accuracy was 91.67%. This work has established that the chromaticity of chicken comb features can be utilized to detect infected chickens and it is the first report on detecting NDV-infected chicken as early as 36 hours post-infection using image processing and ML with an accuracy rate of >75% based on the combination of chicken's comb chromaticity and morphological features. These significant findings contribute to advancing modern agricultural automation technology for early disease detection, ultimately enhancing food security.

Keywords: *Chicken Comb, Disease Infection, Machine Learning, Morphology, Optical Chromaticity*

6. **SF-006**

Innovative Approaches in Disaster Risk Reduction: The Impact of Safety Professionals

Mohd Zainoor Annuar bin Mohd Zain, Khamarrul Azahari bin Razak and Azizan bin Ramli

Earthquakes, tsunamis, floods, and typhoons occur almost annually, causing property damage, injuries, deaths, and cross-border effects. While these high-profile disasters garner attention, lesser-known occupational dangers have the potential to transform into technological disasters with serious and far-reaching consequences. This research aims to analyse community perceptions, review technological accident reports, and interview subject-matter experts. The objective is to enrich the understanding of technological risks and their management. A significant outcome of this research is the formulation of the Pasir Gudang Disaster Risk Reduction (PGDRR) framework. This framework is the result of a collaborative effort to improve disaster preparedness and response across various groups, such as safety professionals, local authorities, and the broader community. This study shows that safety experts can implement most of the 11 PGDRR principles to respond to technological disasters and their effects. Additionally, the interdisciplinary framework seeks to unify diverse efforts, ensuring an effective approach to mitigating the impacts of technological disasters and fostering a resilient community. The framework recommends both short-term and long-term actions by focusing on partnerships, information sharing, and communication plans in a comprehensive cycle of mitigation, preparedness, response, and recovery. This study encourages policymakers, professionals, and stakeholders to prioritize community-centric methods in disaster frameworks to effectively plan for and respond to future disasters. The goal of this paper is to provide a complete framework for enhancing the resilience of communities in Malaysia to natural and technological disasters in major industrial areas.

Keywords: *technological, disaster, interdisciplinary, safety, professional*

7. **SF-007**

The Nexus of Electricity Consumption and GDP Growth in Malaysia

Muhammad Fareez Bin Jamali

Determining the direction of causality between economic growth and electricity consumption is crucial for a thorough policy development. Despite various studies conducted by the researchers, the causality relationship between energy consumption and economic growth in Malaysia is still ambiguous and inconclusive. This paper aims to analyse the direction of causality in Malaysia by using recently available data to increase the robustness of the outcome. A series of data spanning from 1980 to 2021 was used to analyse the Johansen cointegration and Granger causality tests. The results of this study discovered no cointegration of electricity consumption and real GDP growth, and only a short-run relationship can be derived. The Granger causality results show a unidirectional relationship with the conservation hypothesis, suggesting that real GDP Granger causes electricity consumption. These findings suggest that implementing energy efficiency and conservation efforts is feasible in Malaysia, as energy consumption does not negatively impact economic growth.

Keywords: *causality, cointegration, electricity consumption, economic growth*

8. SF-008

Integrating Malay Motifs into Japanese Woodblock Print Techniques: A Study on 'Itik Pulang Petang' using 3D Printing Technology

Muhammad Sukor Romat , Noor Azzanny Jamaludin and Mohd Iqbal Badaruddin

This research explores the integration of traditional Malay motifs, 'Itik Pulang Petang,' into Japanese woodblock print techniques, utilizing 3D printing technology. Traditional Japanese Woodblock prints are one of the most diverse art-forms the human psyche has ever created, depicting nearly every conceivable aspect of daily life in Japan. It involves the engraving of an image or words onto a block of wood, which is painted with ink and pressed against paper. This research aims to combine the intricate cultural aesthetics found in traditional Malay art with the meticulous precision and intricate detail characteristic of Japanese woodblock printing. The goal is to develop a novel form of artistic expression that reveres and pays homage to both rich and diverse cultural traditions. By utilizing 3D printing technology enhances the intricacy of the design process, enabling precise reproduction and adaptation of the intricate 'Itik Pulang Petang' motif. This interdisciplinary approach not only preserves and revitalizes traditional art forms but also offers new possibilities for contemporary artists. The research findings provide compelling evidence of how 3D printing technology serves as a catalyst in preserving and promoting diverse cultural heritages, enabling innovative approaches while safeguarding traditional artisanal practices and techniques. Besides that, it shows how 3D printing can connect cultural heritages, fostering innovation while preserving traditional craftsmanship.

Keywords: *Malay Motifs, Japanese Woodblock Print, Woodblock Print Technique, 3D Printing Technology*

9. SF-009

AI-Driven Nanobiotechnology Strategies for Enhancing Cell Viability and Functionality in 3D Bio-Printed Constructs for Ischemic Heart Disease Treatment

Jafar Ali Ibrahim Syed Masood, David Asirvatham, N. S. Kalyan Chakravarthi, Mohamed Kalith Oli M

The treatment of ischemic heart disease (IHD) remains a significant clinical challenge, necessitating innovative approaches to regenerate damaged myocardial tissue. This pioneering research explores cutting-edge nanobiotechnology strategies integrated with Artificial Intelligence (AI) and Machine Learning (ML) techniques to enhance cell viability and functionality within 3D bio-printed constructs specifically tailored for IHD treatment. Nanobiotechnology offers unparalleled precision in manipulating the cellular microenvironment, which is critical for fostering effective tissue regeneration. This study integrated nanomaterials into 3D bio-printed cardiac constructs to create a conducive environment for cardiomyocyte survival, proliferation, and function. The constructs were engineered using biocompatible hydrogels embedded with nanoparticles designed for controlled release of pro-survival and angiogenic factors, such as vascular endothelial growth factor (VEGF) and insulin-like growth factor-1 (IGF-1).AI and ML algorithms were employed to optimize the bio-printing process and the design of the nanomaterial-enhanced constructs. By analysing vast datasets from previous experiments and simulations, ML models predicted the optimal concentrations of growth factors, nanoparticle distribution, and structural configurations to maximize cell viability and functionality. These predictive models significantly reduced experimental iterations, accelerating the development of effective bio- printed constructs. Our approach also involved the incorporation of conductive nanofibers to mimic the natural extracellular matrix (ECM) of myocardial tissue, promoting electrical conductivity and synchronization of cardiomyocyte contractions. This hybrid bio-

printed structure aimed to replicate the mechanical and electrical properties of native heart tissue, crucial for restoring normal heart function in IHD patients. Experimental results demonstrated a remarkable improvement in cell viability and functionality within the AI-optimized, nanobiotechnology-enhanced constructs. The sustained release of VEGF and IGF-1 from the nanoparticles significantly increased cardiomyocyte proliferation and reduced apoptosis under hypoxic conditions, simulating the ischemic environment. Additionally, conductive nanofibers facilitated enhanced electrical coupling between cardiomyocytes, leading to more robust and synchronized contractions. Advanced imaging, electrophysiological assessments, and AI-driven analysis confirmed the structural and functional integrity of the bio-printed constructs. The constructs exhibited well-organized cellular architecture, improved vascularization, and restored electrical conductivity, closely mimicking the native myocardial tissue.

In conclusion, our study underscores the transformative potential of integrating AI and ML with nanobiotechnology in cardiac tissue engineering. By focusing on ischemic heart disease, we demonstrate that this multidisciplinary approach, bringing together nanobiotechnology, AI, and ML, can significantly enhance cell viability and functionality, paving the way for effective myocardial regeneration. These findings highlight a promising avenue for developing advanced therapeutic strategies to combat IHD, ultimately improving patient outcomes and advancing the field of regenerative medicine.

Keywords: *Ischemic heart disease, 3D bio-printing, Artificial Intelligence, Machine Learning, Nanobiotechnology, Regeneration*

10. SF-010

Water Segmentation for Flood Detection using Deep Learning on Remote Sensing Images

Mohd Shahar Abdullah, Ali Selamat, Nguyet Quang Do and Mohd Azlan Abu

Natural calamities, including flood, can cause severe damage to environment, human life, and property. Accurate and timely identification of inundation areas is essential for effective and efficient disaster preparedness, response, and recovery efforts. Due to global climate change and urbanization, the population density towards flood-prone areas has increased rapidly. To protect the population and mitigate the devastating impacts of natural disasters, there is an urgent need for reliable technologies to process and analyse remote sensing imageries for flood detection. In recent years, deep learning algorithms, such as Convolutional Neural Network (CNN), have achieved tremendous success for image-related tasks, including image segmentation. Consequently, this paper aims to propose a model based on CNN for early detection of flood disaster. The proposed solution leverages the potential of UNet architecture and employs EfficientNetB7 as a backbone to improve the accuracy of water body segmentation. The proposed model was trained and tested on the HISEA-1 SAR dataset using remote sensing images and benchmarked with various baseline architectures using several evaluation metrics. The experimental results showed that the proposed approach outperformed the existing solutions in the flood detection domain, achieving the highest Accuracy, F1-Score, and IoU value of 95.99%, 97.53%. and 95.19%, respectively. Through accurate flood image segmentation, this study possesses the potential to facilitate the enhancement of disaster management systems.

Keywords: *disaster management, flood detection, image segmentation, deep learning, remote sensing.*

11. **SF-011**

A Proposed Comparative Study on Intercultural Communication Competency of Foreign Healthcare Workers in Malaysia and Japan

Ahmad Akira, Farha Naomi Omar Farouk, Moniza Waheed

Malaysia and Japan established diplomatic ties in 1957 and continue to strengthen their relationship in peace and security, economic prosperity, science and technology, cultural exchange, and global cooperation. Despite cultural, political, social, and economic differences, both countries face a common situation: integrating foreign workers into their healthcare sectors. In July 2023, Malaysia had approximately 3 million foreign workers, representing 8.9% of its population. The country faces a significant nursing shortage, with a nurse-to-population ratio of 1:454, far below the WHO-recommended 1:300 ratio. To address this, Malaysia has been recruiting nurses from India, Sri Lanka, the Philippines, and Indonesia. In Japan, the number of foreign workers reached approximately 2 million in October 2023, accounting for 1.6% of the population. As Japan's population ages, there is a growing demand for care workers, particularly for the elderly and disabled. In 2022, there were around 6,900 foreign caregivers, with 40% coming from Vietnam. The integration of foreign workers into the healthcare systems of both countries presents unique challenges. Ensuring that foreign workers can meet the needs of the society they serve while leading comfortable lives, and fostering fair treatment from the local community, is essential. This study proposes to investigate intercultural communication competency (ICC) among key stakeholders in the healthcare sectors of Malaysia and Japan, focusing on four groups: 1) foreign workers, 2) care recipients, 3) hospital management, and 4) local staff. Semi- structured, in-depth interviews guided by ICC variables—empathy, sensation seeking, attitudes, ethnocentrism, and motivation—will be employed to understand the dynamics of intercultural interactions in healthcare settings. The interviews will be recorded, transcribed verbatim, and analysed inductively as well as deductively through thematic analysis. Findings will reveal the status of foreign workers in Malaysian and Japanese healthcare, offering insights and recommendations to enhance the quality of life for all parties involved.

Keywords: *healthcare, nurses, caregivers, intercultural, communication*

Oral Presentation and Poster Presentation

Track 6: Cross-disciplinary and Other Emerging Areas

1. **TF-001**

Towards Circular Prosperity: A Blueprint for Sustainable Transformation in the Malaysian ICT Industry

Mohamad Ghozali Hassan

The issue of resource wastage has reached critical levels, as demonstrated by the 2023 Circularity Gap Report, which reveals that an astonishing 90% of extracted materials ultimately become waste. This inefficiency significantly impacts climate change, with 70% of global greenhouse gas emissions attributed to material handling. To meet the Paris Agreement and Sustainable Development Goals (SDGs) targets, addressing resource consumption is imperative. This article advocates for transitioning to a circular economy to mitigate resource wastage and its environmental impacts. A circular economy minimizes waste by creating closed-loop systems where products, materials, and resources are reused, remanufactured, and recycled. This shift requires extensive collaboration across the supply chain and proactive governmental intervention. The authors present a detailed case study of the Information Communication Technology (ICT) value chain in Malaysia, supported by GIZ and the Global Solutions Initiative. This case study

analyzes current challenges and opportunities within the ICT sector, which is crucial due to its rapid growth and significant economic contribution. The study offers actionable recommendations to promote circularity within the ICT value chain. These include creating demand for circular products, enhancing waste management practices, and bolstering capacities in the ICT manufacturing sector to integrate circular design principles and innovative technologies. Policy support and regulatory frameworks are emphasized as essential to facilitate the transition to a circular economy. Governments play a crucial role in setting standards, providing incentives, and fostering an enabling environment for circular practices. Collaboration between public and private sectors is necessary to drive systemic change. The findings provide a strategic blueprint for emerging economies to align with global sustainability trends and strengthen their industries against future challenges. By adopting circular economy practices, countries can reduce greenhouse gas emissions, enhance economic resilience, and foster innovation. This approach not only contributes to global sustainability goals but also offers significant economic benefits. In conclusion, addressing resource wastage through a circular economy framework is vital for sustainable development. The case study of Malaysia's ICT value chain serves as a model for other emerging economies, demonstrating how targeted interventions and collaborative efforts can drive positive change and build a sustainable future.

Keywords: *Circular Economy, Resource Wastage, Sustainable Development, ICT Value Chain, Greenhouse Gas Emissions*

MALAYSIA JAPAN
VISIONARIES
CONFERENCE 2025

AN INTERDISCIPLINARY CONFERENCE TO FOSTER TALKS AND KNOWLEDGE EXCHANGE BETWEEN MALAYSIA & JAPAN

- **2025 conference date and venue to be announced in due course.**

CALL FOR COMMITTEE!

Looking to enhance your academic networks and experiences? Join our team!

- **STUDENTS OR WORKERS, ANYONE IS WELCOMED!**
- **COMMITTEE CERTIFICATE WILL BE AWARDED!**
- **FLEXIBILITY TO ATTEND COMMITTEE MEETINGS ONLINE OR OFFLINE**

For more info

info@mjvc.jp

Website

Join us!

- Due to the quota of committee posts, the invitation is on a first come, first served basis

Calling for committee for MJVC 2025!

Calling for TPC for MJVC 2025!

Share your feedback with us!

MALAYSIA JAPAN VISIONARIES CONFERENCE 2024

Organised by

MALAYSIA-JAPAN ACADEMIC ASSOCIATION

Strategic Partner

MINISTRY OF HUMAN RESOURCES

TalentCorp GROUP OF COMPANIES

Supported by

EMBASSY OF MALAYSIA TOKYO

Co-hosted by

TECHNOLOGY MANAGEMENT FOR INNOVATION TMI

In co-operation with

JAGAM

マレーシア元留日学生協会
Japan Graduates Association of Malaysia

Career Fair Partner

在日マレーシア留学生会
Pertubuhan Kebangsaan Pelajar Malaysia di Jepun
Malaysian Students' Association Japan

In collaboration with

CENTER FOR MALAYSIAN STUDIES

SOKA University

STEPAN
SCIENCE, TECHNOLOGY, ENGINEERING & INNOVATION POLICY ASIA AND THE PACIFIC NETWORK

UTM Malaysia-Japan International Institute of Technology (MJIIT)
UNIVERSITI TEKNOLOGI MALAYSIA

UTM UTMAlumni
UNIVERSITI TEKNOLOGI MALAYSIA

UNESCO

Aeps

IMAN 日本 JPN

MJS

"Our deepest appreciation goes to our collaborators for their unwavering support. Your involvement has been crucial to the success of this conference."