Program Book

The 3rd International Conference on Information & Communication Technology

Innovation for Sustainability Solutions through IR 4.0

A Virtual Conference co-organised by UniKL & UPNM

23 March 2021

Editors

Dr. Mohammad Adib Khairuddin

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Preface

The 3rd International Conference on Information & Communication Technology (ICICTM) 2021 is jointly organized by Universiti Kuala Lumpur (UniKL) and Universiti Pertahanan Nasional Malaysia (UPNM). Due to the Covid-19 pandemic, ICICTM 2021 will be held in a new dimension and will be different from the previous two ICICTMs where it is going to be conducted virtually.

In line with the theme of "Innovation for Sustainability through Industrial Revolution 4.0 (IR4.0) that has transformed Information Communication Technology (ICT) to provide a better service and product using Internet of Things and Big Data, ICICTM 2021 is seen to be the flexible online conference that aims to gather scholars, experts and researchers in getting academic exchange focuses on various aspects of advances in information and communication technologies.

We are honoured to have received a lot of paper submissions for the conference during this pandemic period. However, we have selected 112 high-quality papers and compiled them into the proceedings after going through rigorous reviews and process to meet the requirements of International publication standard. These papers feature the following topics namely Artificial Intelligence, Big Data & Operating Research, Security and Privacy, New Media Technologies, Maritime Technology, and Social Science and Business.

It is hoped this conference offers a golden opportunity for academics and professionals to share their broad array of ideas in research and identify the developments and challenges entailed in strengthening the academic and industrial linkages through cross-disciplinary interests. May the presenters and participants enjoy and gain some valuable knowledge from this virtual conference of ICICTM 2021.

Welcoming Remarks from the Deans

Bismillahirrahmanirahim,

Assalammualaikum warahmatullahi wabarakatuh and Salam Sejahtera.

First and foremost, it is my great pleasure to welcome all of our distinguished conference delegates and speakers, presenters, and participants to the 3rd International Conference of Information & Communication Technology 2021 (ICICTM 2021). The conference is organised by the Malaysian Institute of Information Technology (MIIT), Universiti Kuala Lumpur (UniKL) and Faculty of Defense Science and Technology (FSTP), Universiti Pertahanan Nasional Malaysia (UPNM) in collaboration with several local and overseas universities.

This year International Conference of Information & Communication Technology 2021 (ICICTM 2021) brings us latest state-of-the-art theme: “Innovation for Sustainability Solution through Industrial Revolution 4.0 (IR4.0)”. It is to cater the current needs on digital innovation in various research areas and industries. International Conference of Information & Communication Technology 2021 (ICICTM 2021) aims to provide an excellent opportunity to share and exchange technologies and applications in the field of digital innovation for professionals, engineers, academics, and industrial people worldwide.

Current developments in the ICT field have always affected the education field. Undisputedly, the educational and other sectors have always been a major beneficiary of ICT, and the advancement of ICT will always have an immense impact on the teaching and learning practices of educational institutions, encompassing a wide spectrum of educational levels. ICT integration can be employed to success the transformation of the national agenda including bringing industry and academia in the context of research and commercialization, as well as transforming education system to meet the critical needs of producing the critical, creative and innovative resources needed by the country. Thus, ICICTM 2021 is mainly aimed to provide a sharing platform that enables researchers, academics, and practitioners in sharing the best practices; produced through research, as well as to propose the best strategy in empowering science and technology 4.0 through ICT integration in various knowledge field or domain.

With the theme "Innovation for Sustainability Solution through IR 4.0”, ICICTM 2021 highlight six (6) tracks for virtual paper presentation, which are:

1. Artificial Intelligence
2. Big Data & Operations Research
3. Security & Privacy
4. New Media Technologies

5. Maritime Technology
6. Social Science & Business

Besides the paper presentations ICICTM 2021 also offers virtual online presentation, talks from guest speakers, and some fruitful knowledge sharing session with the aim to introduce the strategies to write citable papers for journal publication. You may take this golden opportunity to build your network as well as share your significant excerpt of research work. I am personally looking forward to that those research works would give a positive impact of ICT on the many facets of our lives, remarkably with Innovation for sustainability towards IR 4.0.

Last but not least, I hope ICICTM 2021 will increase more research collaborations and opportunities between institutions involved besides knowledge sharing and exchanging Ideas. I also would like to express blessed gratitude to both university management (UniKL & UPNM) for their support to this conference, and a heartfelt wish to all the committees involved in ICICTM 2021 from both UniKL and UPNM, without you, ICICTM 2021 will not be a reality.

Representing the organiser, I proudly welcome all of you to ICICTM 2021. Wishing all participants, fruitful and memorable experience for during the conference event.

Thank You.

Assoc. Prof. Dr. Zalizah Awang Long

Dean

Malaysian Institute of Information Technology

Universiti Kuala Lumpur

“RESEARCH AND INNOVATION ARE THE KEYS TO MOVE FORWARD”

Assalamualaikum Wa Rahmatullahi Wabarakatuh and Good Day.

First and foremost, it is my great pleasure to welcome you to the 3rd. ICICTM 2021. I am very grateful to UniKL for the tremendous support they have provided as host for this academic conference. I would also like to personally thanks the committee members who have put together a very engaging programme for us to gather. A warm welcome to all eminent speakers’ guest from all over the country from different walk of life you have come here to share your knowledge and vast experience with us.

This conference is a scholarly assembly, occurs every 2 years which organized by both UPNM and UniKL. This year is the 3rd time UPNM and UniKL have organized this conference consecutively as a continuation of the first conference held in 2016. This conference will touch on issues that include research for fields related to science and technology in line with the theme of Innovation for Sustainability Solutions Through IR4.0.

The objective of this conference is to provide a platform for researchers and academics to interact and exchange their opinions with professionals from various fields. I believe through this conference, the quality of research can be evaluated and disseminated for the development of a scientific community which may contribute to the national economic growth. This will also help to materialize the ideas and results of academic research for the industry and society usages.

At this conference, the field of paper presentation is focused on 6 areas including the Artificial Intelligence, Big Data, Security and Privacy, New Media and Technologies, Maritime Technology and Social Science and Business. Progress in all these areas is expected to be a catalyst for the country's economic growth and power for us to compete internationally.

In achieving the country's target to produce first-class human capital and also the scientific community to achieve the country's new economic capital, such international conferences are expected to give impacts and momentum to the researchers and academics. This time we are focusing on the sustainable development and the discovery of the new and latest technologies to meet current and future needs in the context of development and contribution to the country, society and environment.

I strongly believed that it is not an easy task to orchestrate and organize a conference whose participants are not only from within the country but also from abroad. This is the first conference which is completely conducted on a digital platform in line with the social distancing norms due to the COVID-19 pandemic.

Therefore, I would like to congratulate UPNM and UniKL again for being able to organize a conference which in my opinion, not only elevate the milestone of the university at the national level but also at the international platform. This success also shows the upmost dedication, efficiency and commitment by each member of the executive committee.

I sincerely hope that this conference would leave a positive impact and tremendous transformation to all participants. Not only able to make this forte as a field for exchanging opinions but I do hope that it will produce the results as expected.

Last but not least, I trust that this conference will initiate something great for all researchers to continue to work together hand in hand to be a catalyst and to prepare the country towards scientific and technological excellence. With this, I truly hope and pray that this 3rd ICICTM 2021 runs smoothly, In Shaa Allah.

Congratulations once again to the participants and good luck presenting the paper!

Thank you.

Lt. Cdr. Assoc. Prof. Ts. Dr. Mohd Norsyarizad bin Razali RMN (Retired)

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Puan Siti Sarah binti Mohd Isnan

Program Overview

TIME	DETAILS
8.30 - 11.00 AM	**ICICTM 2021 Opening Ceremony** https://teams.microsoft.com/l/channel/19%3ad402b02bce4a48ae8e853bb3ef32c408%40thread.tacv2/General?groupId=c5543aa8-979d-4f94-b9c1-ed152baf3ebe&tenantId=59c53902-8bf9-40c0-a6af-ff68bb705ee5 **Welcoming Speech by,** Assoc. Prof. Dr. Zalizah Binti Awang Long, Dean, MIIT UniKL Lt. Cdr. Assoc. Prof. Ts. Dr. Mohd Norsyarizad bin Razali RMN (Retired), Dean, FSTP UPNM Prof. Dr. Shahrulniza Musa, Acting President/ CEO UniKL Lt Jen Dato' Hasagaya bin Abdullah, Vice Chancellor UPNM **Plenary Session** A keynote speech by Ms. Tina Chee, Head of Systems Engineering/ CTO Cisco Malaysia *Powering an Inclusive Future for All* *(Trends Shaping the Future with IR4.0)* **Invited Speaker Session** A speech by Prof. Dr. Roslan Ismail *The Art of Research and Challenges in the Era of Industrial 4.0*
11.15 AM - 1.00 PM	**Parallel Sessions – Morning Session** Please refer to the session schedule for channel's link and presentation slots.
2.15 - 5.00 PM	**Parallel Sessions – Afternoon Session** Please refer to the session schedule for channel's link and presentation slots.

Parallel Sessions

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https://teams.microsoft.com/l/channel/19%3abf7c6f94dbd8459aab2c4b3a9387963e%40thread.tacv2/Track%25201%2520(Channel%25201)%2520-%2520Artificial%2520Intelligence?groupId=c5543aa8-979d-4f94-b9c1-ed152baf3ebe&tenantId=59c53902-8bf9-40c0-a6af-ff68bb705ee5

Channel 2

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Link for the channels,

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https://teams.microsoft.com/l/channel/19%3abc235ef1877d454599b9d59d8ed8758f%40thread.tacv2/Track%25202%2520(Chnl%25201)-%2520Big%2520Data%2520and%2520Operations%2520Research?groupId=c5543aa8-979d-4f94-b9c1-ed152baf3ebe&tenantId=59c53902-8bf9-40c0-a6af-ff68bb705ee5

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https://teams.microsoft.com/l/channel/19%3a4d35f60625b4478f88d933c36023f13c%40thread.tacv2/Track%25203%2520(Channel%25201)%2520-%2520Security%2520and%2520Privacy?groupId=c5543aa8-979d-4f94-b9c1-ed152baf3ebe&tenantId=59c53902-8bf9-40c0-a6af-ff68bb705ee5

Channel 2

https://teams.microsoft.com/l/channel/19%3a360fafa4761047aab2dbf777775ba3f6%40thread.tacv2/Track%25203%2520(Channel%25202)%2520-%2520Security%2520and%2520Privacy?groupId=c5543aa8-979d-4f94-b9c1-ed152baf3ebe&tenantId=59c53902-8bf9-40c0-a6af-ff68bb705ee5

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Track Four - New Media Technologies

Link for the channels,

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https://teams.microsoft.com/l/team/19%3a6bd6f02eb4934dd9bdf41cfa9adddf9f%40thread.tacv2/conversations?groupId=1135db9c-9a1d-4992-af4c-618e6fee1e3c&tenantId=5a2117b2-c0f5-4654-97f8-7f32b40a1e10

Channel 2

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Parallel Sessions

Track Five - Maritime Technology

Link for the channels,

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https://teams.microsoft.com/l/team/19%3a5fd45abfb5ef4b819f6b094513e73c4d%40thread.tacv2/conversations?groupId=a6466ae8-73af-431f-ac66-f433d595cde0&tenantId=5a2117b2-c0f5-4654-97f8-7f32b40a1e10

Channel 2

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Parallel Sessions

Track Six - Social Science and Business

Link for the channels,

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Channel 2

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Abstracts

Syed Farrukh Amin and Amna Saad. ***Measuring the Performance of Business Information Systems: Pilot study in Saudi Business Environment.***

Abstract: This research paper investigates the net benefits to an organisation by using business Information System in Saudi Arabian business environment. This pilot study conceptualises the DeLone and McLean's Model (2003) and tests the dimensions of the model for future work in progress. A sample size of 300 firms has been targeted for actual study and hence selected 15% for the pilot test data. The questionnaire has been designed in Google form application and sent to 55 respondents working in various organisations in Yanbu, Saudi Arabia, 45 responded. The data has been analysed using both descriptive and inferential statistical approaches. The demographic data analysed using descriptive statistical approach whereas, inferential statistical approaches such as ANOVA, Regression and Correlation analysis, used for testing the hypothesis of the model. The results of the study reveal that all the dimensions of the model are not satisfying the Net Benefit of using Information System. Finally, it is concluded that Systems Quality and User Satisfaction contribute more to the model for measuring the performance of information systems success

Syarifah Bahiyah Rahayu. ***Assessment of Cybersecurity Awareness in Supply Chain System of Defense and Security Sector.***

Abstract: Organizations in Defense and Security sector must provide a comprehensive cybersecurity awareness at all supply chain levels. Cybercriminal targets defense and security sector all over the world using various methods of cyber threat. Previous studies show human factors and physical security are the contributions to this cyber-attack. It is imperative for companies to better prepare their workforce against these unscrupulous cyber and physical methods by implementing a rigorous security awareness regime. This study investigates cybersecurity awareness among employees who involved directly with the supply chain system. A survey questionnaire was distributed both hard-copy and online. 380 employees were able to respond to the study. The overall findings show employees are fairly aware of cybersecurity in the supply chain system. This critical sector should provide a comprehensive cybersecurity awareness to educate its employees about security practices in the workplace.

Salisu Nuhu. ***Optimization of Quicklime Production from Eggshell Using Response Surface Methodology***

Abstract: :- This study developed empirical response surface models for optimizing the quicklime characteristics. The calcination process parameters evaluated were calcination temperature, calcination time, and eggshell particle size. Two process models were successfully developed and validated for RSM models. The modeling validation runs were within the 95% prediction interval of the developed models and their residual errors compared to the predicted values were less than 5%. Results from this study shows that the significant parameters that influenced the quicklime yield and reactivity are calcination temperature, calcination time and eggshell particle size. The RSM approach shows that a compromised setting of calcination temperature of 945.91oC and calcination time of 180.82 min will produce quicklime of optimal yield of 99.6608 % and optimum level of calcination time of 210 min and calcination temperature of 895.03oC produced optimum quicklime reactivity of 0.467835oC/s. The RSM models developed in this study can be used in the quicklime production industries to find the settings of the calcination process that will maximize quicklime quantity and quality. This will reduce the downtime encountered by industries having problems caused by variation in the quality of purchased quicklime.

Assaidah Aisyah Yusry and Shahrinaz Ismail. ***"Who are our Experts?" – Development of Expert Profiling System for a Malaysian University***

Abstract: An Expert Profiling System, or "Experdite", is proposed to find academicians or research knowledge experts in specific areas. In a Malaysian private university, the members of Research and Innovation Unit (R&I) find difficulties in finding qualified experts in specific areas. The quest of finding them is often for assigning assessors and reviewers for research projects, especially for new research areas. At times, the expertise grows from one research area to another, or changes with time. Sometimes, expertise is not determined by the section where the academicians belong, because research area and interest may cross sections or applied across sections. The purpose of this research is to develop a system that identifies knowledge experts within an organization. In order to do this, Rapid Application Development (RAD) was chosen to guide the project development process. Questionnaire survey was conducted to evaluate the functionality and usability of the proposed system. In general, every university should have an Expert Profiling System that simplifies and eases users to find academicians or research knowledge experts in specific areas, and this research proposes one.

Ahmad Alfian Ruslan, Shafina Mohamed Salleh, Sharifah Fatmadiana Wan Muhamad Hatta and Aznida Abu Bakar Sajak. *IoT Soil Monitoring Based on LoRa Module for Palm Oil Plantation*

Abstract: IOT Soil Monitoring Based on LoRa Module for Palm Oil Plantation is a prototype that sends data from the sender to the receiver by using LoRa technology. This prototype is using the TTGO development board for Arduino with built-in ESP32 and LoRa, pH sensor and moisture level sensor as main components. It shows the LoRa communication between the sender and the receiver. The sensors will detect soil pH along with the moisture level. The data then will be sent to the receiver, where it will be displayed in the OLED display, and at the same time, the data will be uploaded to the database named ThingSpeak by using wireless communication. Users can monitor the data collected by accessing ThingSpeak's website using smartphones or laptops. In conclusion, the prototype is easy to set up and use to help users monitor the pH level and moisture level percentage. For future enhancement, the project can be enhanced by combining temperature and tilt sensors to get more information about the soil.

Yasmin Yahya, Nurhadiana Nurulmatin, Nurul Sharaz Azmanuddin and Norhatta Mohd. *English Proficiency and Academic Achievement of Technical Undergraduates*

Abstract: This study identifies the factors that contribute to the students' English language proficiency among Malaysian Institute of Information Technology (MIIT) undergraduates. It further explores the impacts of the undergraduates' language proficiency towards their academic performance. A quantitative and non-experimental approach were used for data collection purposes where data were collected through online questionnaire. 116 UniKL MIIT undergraduates involved in this study. Data analysis were made using inferential and descriptive statistical analyses. Statistical analyses revealed that the undergraduates' academic achievement is influenced by their attitude towards the use of English and their high school English performance. In contrast, the findings indicated that the undergraduates' residency does not contribute to their English language proficiency. It was also indicated that there is a significant difference between the undergraduates' level of English Language Proficiency based on their academic achievement. In brief, the findings of this study will provide useful insights on how undergraduates' English language proficiency is influenced by many external factors that can affect their academic performance at large. It is crucial to be proficient in English language not only to perform excellently in school but also in higher learning institutions. This is particularly pertinent, when working in the English medium environment. Thus, this research paper hopefully will provide some improvements and recommendations in assisting the tertiary institutions to produce more in demand graduates who are able to compete at the international level.

Noormadinah Allias, Megat Norulazmi Megat Mohamed Noor, Mohd Nazri Ismail and Mohd Taha Ismail. *Exploring the Impact of Quality of Services and Quality of Experience Towards LTE Handover Configuration Parameters*

Abstract: For the past few years, the Third Generation Partnership Project (3GPP) has introduced the Long Term Evolution (LTE) as a key answer in supporting the users' demand in having faster data connection. Nevertheless, another problem arises as the users move from one location to another, they will face a service interruption. As a result, a switching between one base station to another base station is required. This process is known as handover. Basically, the handover in LTE can be done by using two types of algorithms, which is the A3RSRP and A2A4RSRQ. Both of the algorithms are associated with two Handover Control Parameters (HCPs), which is the Hysteresis Margin (HM) and Time-to-Trigger (TTT) for the A3RSRP.Meanwhile, the A2A4RSRQ is associated with Neighbor Cell Offset (NCO) and Serving Cell Threshold (SCT). Earlier, a tremendous amount of studies has been conducted to evaluate the impact of Handover Control Parameters (HCPs) on the LTE network. However, the studies solely focused on the Quality of Service, (QoS) thus neglecting the Quality of Experience (QoE). Therefore, this paper will examine the impact of the Handover Control Parameters in regards of user trajectories and coverage hole on the QoS, and QoE. Findings from the study found that the A2A4RSRQ algorithm performed better as compared with A3RSRP algorithm once the mobile user moves in a range of Angle_1 and Angle_2 directions. On the other side, a different Handover Control Parameters should be assigned based on different user trajectory in order to obtained good handover performances.

Azir Rezha Norizan, Faridzatul Shahira Khalid and Mohd Hafiz Faizal Mohamad Kamil. *Activity Centred Design Based Framework in Analysing Real Estate Negotiator Activity towards Agency Best Practice*

Abstract: This study shows an application of Cultural-Historical Activity Theory (CHAT) in the analysis of activities in the real estate industry. In order to do deep analysis on the activities, we develop an activity centered design based framework. This paper going to explain in detail the methodology used in modifying and implementing the framework developed. This study focuses on real estate negotiator (REN) activities, following REN which is the nucleus in real estate activities within an agency. The expected outcome of this framework is a clear system of activity for real estate activities around REN. The design of an online agency portal in line with REN and agency activities will be developed in line with the analysis of the resulting activity system.

Munaisyah Abdullah, Salah Mohammed Yahya Al Nawah and Husna Osman. *License Plate Recognition Techniques: Comparative Study*

Abstract: Vehicles' License Plate Recognition (LPR) is a crucial component of many security and law enforcement applications used to identify vehicles by their license plate. Recently, LPR systems have a vast improvement in the techniques, quality, and speed of recognition. However, these techniques excel in solving some challenges faced in daily life scenarios and fails in others. This study aims to analyze and compare the different methods used in LPR, providing a summary of each in terms of accuracy, performance, and points of strength and weakness. This analysis categorized the LPR
into two categories based on the methodology used, namely Traditional Computer Vision Techniques and Deep Learning Techniques. The study's outcome provides a view for researchers and developers about the most used LPR techniques with the pros and cons to select a suitable technique for their research or application.

Aliza Abdul Latif, Noor Habibah Arshad and Norjansalika Janom. *Identification of Indicators to Assess Infostructure Capability in Disaster Management*

Abstract: Infostructure is a new term created for the domain of disaster management describing essential components required in managing disaster. It includes information, structure and technologies that able to promote information sharing in ensuring an efficient disaster management. The main aim of this paper was the identification of indicators of infostructure used in dealing with disaster activities, specifically in the electricity companies. A literature review was conducted in finding suitable indicators from a selection of references. The final phase undertaken was the classification of the indicators for the three processes in disaster, namely coordination, communication and control. Our main contribution was the identification of the indicators of infostructure for disaster management and their classification according to the three processes. This research may yield some light on the assessment of infostructure usage during a disaster faced by electricity company, as well as venturing of the development of suitable tool for the assessment in future research.

Ajhar Ahmad. ***Integration of metacognitive strategy components in learning French vocabularies***

Abstract: This paper attempts to seek the effectiveness of integrating metacognitive components (Planning, Monitoring and Evaluation) in learning vocabulary of Malaysian university students through an eight weeks' program. This experiment aims to answer the following question: Can metacognitive components used facilitate French's vocabulary learning of Malaysian university students? The questionnaire and tests were applied in this study. Forty-five students participated in this study: One class of 21 which received metacognitive components during vocabulary learning involving the experimental group; the other class of 24 students served as the control group and received only conventional method of learning without metacognitive components. The metacognitive components which applied to these students proved to be effective. The experimental group outperformed the control group in the post vocabulary tests. The one-way ANCOVA and T-test are used to analyse the data.

Mohamad Firdaus Mat Saad, Aliza Abdul Latif and Marini Othman. ***Evaluating Agile Information-Based Framework for Flood Management Utilizing Metadata Concept in Simulated Environment to Support Flood Operation Activities***

Abstract: Operational policies are established to handle natural hazards including flood to minimize the effect with differing degrees of effectiveness and increasing relaxation. Sometimes policies are time-consuming of rigid protocols that are inadequate in a dynamic and somewhat chaotic environment synonymous with the complexity of flood disaster. Hence, this research aimed at recommending the incorporation of agile concepts in flood control, which would offer stability and adaptability in the control of the complex flood situation. Extensive reviews on flood management and existing frameworks for disaster management were conducted to understand the problems and the potential solution to construct an agile framework. A grounded analysis was conducted to obtain insight into how the agility of standard operating procedures could be enhanced. The agile components have been defined by contrasting characteristics from other effective disciplines, including software development and health care, that share common complexity in management environments. Consequently, an Agile Information-Based for Flood Management Framework is proposed. A theoretical evaluation of the proposed key values for the agile framework has been conducted using the metadata concept. The evaluation identified the similarity feature in the same area where the proposed framework was agreed to be implemented in tandem with Tenaga Nasional Berhad's emergency response plan to improve flood operations. The proposed framework is required to be adopted and further strengthened by other significant variables.

Mohamad Abu Ubaidah Amir Abu Zarim and Marja Azlima Omar. *Dynamics Mechanics Systems of Rigid Helicopter during Ditching*

Abstract: Aircraft and helicopter often travel above open waters and thus have to follow regulations to ensure safe water landing under emergency conditions. This practice is also referred to as ditching, commonly identified as one of several slamming problems that are actively being reviewed by the current regulations of European Aviation Safety Agency (EASA) and Federal Aviation Administration (FAA) Ditching is related to the controlled landing on water, with distinctive features such as hydrodynamics slamming loads, complex hydromechanics at tremendous forward speeds, as well as the interaction of multiphase fluid dynamics (air, water, and vapour phases). This paper presents the knowledge on the mechanics of the systems during helicopter ditching. The discussion begins with the fundamental kinetics of the rigid body, and consequently, the dynamic relations are delved into for the purpose of describing the effect of forces on motions. Lastly, this paper also contains a discussion on several relevant theories in order to explain the impact problem further.

Nur Atiqah Malizan and Mat Razali Noor Afiza. *Opinion Mining Hybrid Technique to Classify People's Emotions in Text using Kansei and Polarity in National Security Domain*

Abstract: Current networks today offer a valuable medium to express emotions, feelings, ideas and opinions, as well as interactions between individuals from different walks of life. Nowadays, there are currently 2.62 billion social networks for active users, which is predicted to hit 3 billion users. Social networks are used to exchange ideas and knowledge allowing individual, groups and organisations to connect. This provides a large and rich pool of knowledge that can play a critical role for corporations, political campaigns as well as administrative management and welfare in decision making. Most posts in Internet are in the form of textual, which can be processed to mine people's emotional feelings. People do not realise that text in the digital media platforms can threat a society's peace when judged with excessive emotions. Excessive emotions from citizen can bring unwanted risks including riot and civil war. Any threat to the society's peace needs to be overcome as it can weaken the national security. For this purpose, this paper explores a hybrid technique to classify people's emotions toward text in online news using Kansei and polarity that can affect the national security. The proposed approach uses hybrid approach that combines Kansei approach and sentiment polarity in evaluating the people's emotions toward text and polarity of the text. The findings from this study can be utilised for opinion mining in the national security domain.

Abdulaziz Aborujilah. ***Post Acceptance Model for Online Teleconsultation services: An Empirical Study in Malaysia***

Abstract: Most nations across the world are actively pursuing equal access to healthcare services. Teleconsultation technology is a substantial improvement in terms of an effective framework for the provision of healthcare services. However, a lack of understanding of people's willingness towards the use of this technology has been observed. The goal of this study is to investigate the factors affecting the post-acceptance of teleconsultation services in Malaysia. This study developed a theoretical model that involved the combination of the second generation of Unified Theory of Acceptance and Use of Technology (UTAUT2) and Expectation-Confirmation theory (ECT), with the inclusion of several other constructs. The online survey was used to collect data from 154 participants and partial least squares (PLS) approach was used for data analysis. The research findings indicate that confirmation, performance, effort expectancy, usefulness, and satisfaction were the key factors that affect the post-acceptance of teleconsultation services. Furthermore, actual use, ease of use, technology readiness, and facilitating conditions did not impact participants' post intention in the continuous usage of teleconsultation facilities.

Nanthini Sridewi, Siti Nurbariah and Syahida Ahmad. ***Heavy Metal Content Analysis and Toxicity Assessment of Oil-Based Drilling Mud using Zebra Fish Embryo***

Abstract: Spent oil-based drilling muds (OBDMs) are toxic to the marine organisms due to its complex chemical nature. The illegal dumping of spent OBDMs is still rampant in many parts of the world despite strict law and regulations pertaining its disposal. Till date there has been no study on the assessment on heavy metal content in spent OBDMs from Malaysian oil and gas industry. Furthermore, the toxicity effect of OBDMs using a zebra fish embryo model has never been reported before. Therefore, in this research, the spent oil-based drilling muds (OBDMs) were analyzed for their heavy metal content and toxicity against Zebrafish embryo. The spent OBDMs were collected from an Anchor Handling Tug Supply (AHTS) vessel mud tank from Kemaman, Terengganu. The heavy metal content in the mud was analysed using ICP-MS. The toxicity and teratogenicity of the mud on zebrafish embryo using endpoints like embryo mortality, heart rate and hatching rate. The heavy metal content in the spent OBDMs recorded barium (Ba) with the highest concentration at 2360 ppm, followed by lead (Pb) 120 ppm, zinc (Zn) 104 ppm, Arsenic (As) 9 ppm, Chromium (Cr) 16 ppm and Cadmium (Cd) was less than 1 ppm. The 96 h LC50 of the OBDMs to zebrafish embryos were reported to be 0.005 ppm which indicates very toxic nature of the spent OBDMs. Zebra fish embryos that were exposed to increased concentrations of the OBDMs exhibited lower hatching rate and reduced heart rate as compared to control. The findings from this research on the potential environmental impacts of OBDMs released into the marine environment can provide the basis for prudent decision making that will lead to the minimizing environmental damage.

Muhammad Syafiq Mohd Abu, Sarah Isnan, Nur Hazimah Nordin, Ainul Rahman, Afiqah Rosly, Adenen Aziz, Zulkifly Mat Radzi, Mohamad Abu Zarim, Mohd Azzeri Md Naiem and Mohd Arif Ahmad. ***Application of GIS: Maritime Accident Analysis in Malaysian Water Using Kernel Density Function***

Abstract: The statics of maritime accidents from Marine Department in Malaysian Territorial water has been increasing . The data of maritime accidents are analysed using Geographical Information System with Kernel Density function to locate and identify the high-risk location of maritime accidents in Malaysian water. The findings suggested that the data of the high-risk maritime location is at Malacca Straits. GIS is useful as a tool to produce map as a guidance to navigators to make their passage plan to avoid maritime accidents.

Zulkifly Bin Mat Radzi, Tang Jut Weng, Md Hafize Md Eusoff, Sarah Isnan and Adenen Aziz. ***Creation of Ship's Navigation Data Using Simulation Technology For Training Module***

Abstract: Navigation data are required for all ships to ensure a ship will be kept on track while wheeling on to a new course. Normally, the navigation data are acquired through the turning trials of a vessel at sea conducted by the shipyard. The aim of this research is to develop a ship's navigation data for Leander Class Frigate (LCF) using simulation technology of Ship Bridge Simulator (SBS) at Maritime Centre, National Defence University of Malaysia. The research was successfully conducted and able to create the LCF's navigation data. The data were found to be accurate and effective for the naval cadet's navigation training module at NDUM.

Norshaheeda Mohd Noor, Suresh Thanakodi, Amalina Farhi Ahmad Fadzlah, Kavivarman Manimaran, Norshahriah Abdul Wahab and Muhamad Lazim Talib. *FACTORS INFLUENCING ONLINE PURCHASING BEHAVIOUR: A CASE STUDY ON MALAYSIAN UNIVERSITY STUDENTS*

Abstract: Consumer behavior is the key to a successful marketing campaign. The consumer purchasing process is a complex issue, as several internal and external factors affect consumers' purchasing decisions. The marketer's ultimate goal is to float a service that generates revenue and ensures customer satisfaction. A question that is often explored and examined by marketers is what causes consumers to choose a particular product relative to others. Research on the market can no longer determine what customers want. People have access to goods and services in dimensions which have never been thought before. The internet had changed the way of shopping. Marketers need to have better understanding of young generation particularly tertiary students, because 90% of International Corporation targeted on young audience as marketing influencer. However, most retailers outsource their logistics segments to third party agencies to take responsibility for all elements of the supply chain which cause major impact on customer satisfaction. Changing consumer behavior challenge the marketers to understand the attempts to remain competitive. Hence, this research study the predominant factor that influence Malaysian university students' purchasing behavior towards online shopping and the difference between the most influential factor public and private institutions purchasing behavior towards online shopping. From the population of two institutions, 384 respondents were chosen for this study through convenient sampling. The study indicates 100% of total respondents are involved in online purchasing. The reliability of influencing factor in this study are significantly reliable and has significant relationship with dependent and independent variables. Study concluded that website influence the Malaysian university students' purchasing behavior. Among the influencing factor between public and private universities, price ranked high impotency to public university students, however the later ranked convenience as the influencing factor. It is believed that this research would be able to guide the future studies focus in the area of online shopping. Customers' perception always changes, therefore, the influencing variables should monitor as time goes and researcher should adopt and update of relevant factors.

Norshaheeda Mohd Noor, Nurasyiqin Mohd Radzi, Zulhilmi Muhammad Nasir, Namashivayam R.Ravindran, Mohd Arif Ahmad and Suesh Thanakodi. *THE ASSESSMENT OF CUSTOMER SATISFACTION ON EXPRESS BUS PROVIDER USING SERVICE QUALITY DIMENSION*

Abstract: A service industry is a business to serve customers. It has become a catalyst to propel a nation's economy to a long-term shift in this competitive world. Hence, service industry plays a crucial role in raising and refining the Malaysian economy. This is because the service industry has transformed many developed countries economy such as the United States of America and the European Union. The industry expects to increase in the share of GDP as the economy matures and it is noticeable in the economy among developed countries. The significance of public transport services helps to forestall traffic congestion due to more numbers of vehicles operate during peak hours. Unfortunately, many customers declare the public transportation in Malaysia is unsatisfactory. Currently, customers often confronted with safety issues on express buses and these conditions deteriorated the quality of services provided. The negligence of bus drivers, over speeding and fatigue can jeopardize the safety of customers hence, reduce the quality of services. Punctuality has become a major issue in Malaysia among service provider. This paper studied the significant factors contribute to the customer satisfaction towards service quality of express buses and compare influencing factors of customer satisfaction between two bus terminals. Samples of 384 respondents were taken to represent the population of consumer from two terminals in Malaysia and was then analyzed by using statistical package and SERVQUAL tools. This study concludes that the most significant factor affecting the customer satisfaction towards express bus is empathy. The comparison shows that reliability, assurance and empathy have high Beta value for Terminal One Seremban compared to Melaka Sentral. Tangible and responsiveness as the significant contributing factors. For future research, a study on the overall customer satisfaction of express bus services in Malaysia is recommended.

Noor Afiza Mat Razali. *Conceptual Model for Prediction of Individual Risk in Developing Colorectal Cancer (CRC) using Hybrid Meta-Analysis and Machine Learning Techniques*

Abstract: Malaysian National Cancer Registry Report reported that colorectal cancer (CRC) cases are increasing at an alarming rate annually and became the second most common cancer among Malaysians. The survival rate for CRC is high if diagnosed at an early stage. Previous study states the prediction of an individual to develop CRC will help to identify individuals at risk, allowing for earlier or more frequent screening and counselling of behavioural changes to decrease risk. However, predicting an individual risk in developing CRC is very complex due to various existing risk factors that need to be considered during the early diagnostic steps. The complexity creates a gap in developing model that could contribute to the early detection of CRC. Thus, this study propose that the integration of Hybrid Meta-Analysis and Machine Learning Technique could contribute to the model in predicting an individual risk in developing CRC. In this paper, we perform a preliminary study on current parameters to predict the individual risk in developing CRC. Based on the preliminary study, we propose a conceptual model for Prediction of Individual Risk in Developing Colorectal Cancer (CRC) using Hybrid Meta-Analysis and Machine Learning Techniques. The outcome of this research shall contribute to a new basis of an artificial intelligence system that will enable early prediction of CRC and enable the use of limited resources of CRC specialist medical practitioner to attend individuals most at risk.

Siti Rohaidah Ahmad, Nurhafizah Moziyana Mohd Yusop, Afifah Mohd Asri and Mohd Fahmi Mohamad Amran. *A Review of Feature Selection Algorithms in Sentiment Analysis for Drug Reviews*

Abstract: Social media data contain various sources of big data that include data on drugs, diagnosis, treatments, diseases, and indications. Sentiment analysis (SA) is a technology that analyses text-based data using machine learning techniques and Natural Language Processing to interpret and classify emotions in the subjective language. Data sources in the medical domain may exist in the form of clinical documents, nurse's letter, drug reviews, MedBlogs, and Slashdot interviews. It is important to analyse and evaluate these types of data sources to identify positive or negative values that could ensure the well-being of the users or patients being treated. Sentiment analysis technology can be used in the medical domain to help identify either positive or negative issues. This approach helps to improve the quality of health services offered to consumers. This paper will be reviewing feature extraction techniques, feature selection algorithms, sentiment classifications, and standard measurements that are used to measure the performance of these techniques in previous studies. The combination of feature extraction techniques based on Natural Language Processing with Machine Learning techniques as a feature selection technique can reduce the size of features, while selecting relevant features can improve the performance of sentiment classifications. This study will also describe the use of metaheuristic algorithms as a feature selection algorithm in sentiment analysis that can help achieve higher accuracy for optimal subset selection tasks. This review paper has also identified previous studies that applied metaheuristics algorithm as a feature selection algorithm in the medical domain, especially studies that used drug review data.

Nur Syafiqa Aifa Shahrom, M.N. Azzeri, Mohd Shukri Yusop, Mohd Norsyarizad Razali, Mohd Najib Abdul Ghani Yolhamid, Ainul Husna Abdul Rahman, Siti Sarah Mohd Isnan, Mohd Arif Ahmad and Afiqah Rosly. *Feasibility Study of Monsoons Effect to Wave Power for Wave Energy Converter in Sabah*

Abstract: This paper presents a research to determine the effects of the Northeast Monsoon (NEM) and the Southwest Monsoon (SWM) to wave power along the coastal area of Mandi Darah Island, Sabah. This study identified the daily data of wave height and wave period for 6 months from June to December 2018. The following period was chosen because it consisted of two monsoon seasons in Sabah. The data obtained from the Acoustic Doppler Current Profiler (ADCP) were analysed thoroughly to estimate the wave height and the wave period to identify the wave power at Mandi Darah Island. The wave heights ranged from 0.01 m to 0.47 m while the wave periods ranged from 1.0 sec to 8.6 sec. The wave height range during the NEM was higher by 0.12 m than the SWM while the difference of wave period was significantly higher by 2.17 sec during the NEM. The maximum wave power recorded at Mandi Darah Island was 1.57 kW/m throughout the period. During the NEM, the wave power was significantly higher by 0.70 kW/m than the SWM. These findings led to determining the wave energy type converter that suits the wave conditions at the Mandi Darah Island coastal area.

Faisal Dharma Adhinata and Apri Junaidi. ***Gender Classification on Video Using FaceNet Algorithm and Supervised Machine Learning***

Abstract: Gender classification using human face data becomes a trending topic for researchers in the field of image processing and computer vision. The human face is biometric information that can be used to differentiate gender using a computer-aided system. Previous research used a local feature algorithm for extracting features on face. However, the processing speed for one image is more than 2 seconds which does not make it suitable for real-time processing using video data. Processing video data requires a fast feature extraction algorithm because video data is a collection of sequential images (frames). Besides that, the success of the gender classification system is also measured with accuracy, so it is necessary to choose the right classification method to divide the two classes of men and women. In this study, we propose the FaceNet algorithm for feature extraction and explore several supervised machine learning methods (K-NN, SVM, and Decision tree) that are appropriate for gender classification on video data. This study used 10,000 training data on each gender. From the experiment, the combination of the FaceNet algorithm and the K-NN method results in the best accuracy of 96% with a processing speed of 0.058 seconds on each frame.

Amna Saad, Mufind Mukaz Ebedon and Husna Osman. ***A survey of scenarios and challenges in ad hoc networks in years 2015-2019***

Abstract: A protocol performance analysis in a Mobile Ad-hoc Network (MANET) depends on the type of simulation tools, mobility models, and metrics used. The choice of these parameters is crucial to researchers because it may produce an inaccurate result if it is not well chosen. The challenges researcher are facing is on the choice of these four parameters. Our survey shows an inclination to used Ad-hoc On-Demand Distance Vector routing (AODV) for performance comparison and enhancement of it by the researcher. Network simulation 2 (NS2) was the most selected tool, but we observe a decline in the utilization of it in recent years. Random Waypoint Mobility model (RWPM) was the most used mobility model. We have found a high percentage of the published article did not mention the mobility models use; this will make the result difficult for performance comparison with other works. Packet Delivery Ratio (PDR), End to End Delay (E2ED) were the most used metrics. Some authors have self-developed their simulation tools, new metrics and protocols have also been used by the authors to get a particular result based on their research objective. However, some criteria of the choice of a protocol, metrics, mobility model and simulation tool were not described, which can decrease the credibility of the result in their papers. Improvement needs to be done in ad-hoc network in terms of benchmark, acceptable scenarios parameters. This survey will give the best practice to be used, and some recommendations to the ad-hoc network community.

Noor Farahiyah Mohd Shobr, Chai Jin Ying Jin Ying, Ruwaida Ramly and Aznida Abu Bakar Sajak. ***Hajj and Umrah Pilgrim Tracker with Smartwatch***

Abstract: In this paper, a prototype of a smart tracking and a health monitoring system for Hajj and Umrah pilgrims has been developed. The prototype is using the TTGO T-watch with GSM/GPS module and a pulse sensor. The system collects the data from the GPS module pulse sensor on the smartwatch to determine the location (longitude and latitude) and heart rate of the pilgrims. The data from the watch is sent to the Blynk server and then shown in the application called 'iTrack' which being built using Blynk platform. It will show the live location and current heart rate of the pilgrims. This device will notify the travel agent and pilgrim when the heart rate is beyond the acceptance range (below 40 bpm or above 128 bpm). The GSM module on the watch makes the device is a stand-alone watch and provide the watch with the mobile data. The internet is used to send data to the application. The notification is sent to the registered number using the SMS. This prototype also has a call button that will call the registered number once being press. In conclusion, this prototype easy to set up and use to help the travel agency and group member to monitor the pilgrim whereabout and heart rate.

Norshahriah Abdul Wahab, M. Rizal M. Isa, Norshaheeda Mohd Noor, Amalina Farhi Ahmad Fadzlah, Suresh Thanakodi and Nur Hazimah Nordin. ***Visual Analytics for Debris Detection Using Drone Observation (VAL-Dr1) for Go Green Concept***

Abstract: This research is basically to investigate the effectiveness and efficiency of drone sensor application. Drone, a form of remotely piloted aircraft systems (RPAS) or also known as unmanned aircraft system (UAS) will record in real-time visual recording, surrounding the targeted area and upload all the visual dataset into a system (VAL-Dr1) to be analysed. The dataset will be analysed based on visual analytics approach whereby the captured images will be manipulated and presented in visual aid form in order to enhance the visualization of operator. The analysis of data will also be as input to the process of prediction in the next phase. The crux of this research are to analyse, develop and test a new system (VAL-Dr1), technique and calculation that the main contributions allowing a quick reduction of suspected mine-polluted areas and post cleaning quality control. The drone and sensor will be as supportive technology that embedded to the system by manipulating the Geographical Information System (GIS). The sensor data will be processed to extract mine land indicators. The sensor fusion module will combine the mine land indicators with the GIS information to achieve mine land delineation.

Leenaambighai Jayabalan, Norshahriah Abdul Wahab and Mohd Rizal Mohd Isa. *Comparative study on mixed reality in the future combat visualization*

Abstract: The development of new technologies has enabled the design of applications to create decision-making tools to solve the problems of daily life. Mixed Reality (MR) environment designed to support a team of end-users such as military and civilian command and control specialists, designers, engineers, and doctors. The Virtual Workbench creates a match for the "real" work environment of persons who would typically stand over a table or a workbench as part of their professional routine. The preliminary analysis indicates that the military applications called VIRTSIM system of virtual reality, which are (i) Inaccuracy and reliability of the data, (ii) Difficulties between terrain and simulator, (iii) False interpretation on Simulator and accessories, and (iv) What are the prospects of the proposed framework. Therefore, this research study will compare the future military in mixed reality design and compare the simulator model and prototype that applied for military rehearsal. The adaptation of simulator techniques such as intuitive interaction techniques (manipulation, scaling, movement, and selection), simulator information (overview, zoom and filter, and details on demand), and simulator variables (touch sensor, replica weapon, position, and orientation) in the VIRTSIM system to help military commander make the effective practice. The research methodology of the design process is the User-Centered Design (UCD) model in which user involvement influences how a design takes shape throughout the design process. In conclusion, the evaluation of the VIRTSIM system indicate positive results to improve military rehearsal and help the commander make decision-making with appropriate planning and hone military tactical skills.

Husna Sarirah Husin and Shahrinaz Ismail. *Exploring process mining for analyzing user navigation behavior*

Abstract: Process mining is a new research area that has gained a lot of attention and has been applied in different domain areas to improve the business process. Event logs are the main input to understand the business process and the workflow of the system. However, not many studies on process mining to discover the user behavior of the system has been performed. Therefore, this exploratory work is to review the previous literatures that have used process mining to discover user navigation behavior in different areas particularly in health, education and e-commerce. In this work, we also investigate the user behavior of a news website by based on the web server logs. Web server logs are collected and pre-processed using web usage mining techniques. To generate the process map, we used Fluxicon Disco. From the process map, we can infer that the starting page for navigation is the article page, instead of the main page. We also investigate the navigation flow between the section pages, and we found that Sports section is the most accessed page, followed by the Entertainment and World section. The results of our analysis can be used to attract more traffic and better user engagement.

Rozita Husain, Norshahriah Wahab and Mohd Syuqrie De Gracious. *The Chicken and Egg Dilemma for Malaysian Sustainable Development Plan against the Economic Development in Meeting SDG 13 Goal.*

Abstract: Malaysia's growth is based on modest development. Progress does not necessarily alleviate the vulnerability of climate change, but only the correct type of development. Investing in entrepreneurial infrastructure and competitive growth models must involve a more risk-management perspective. Climate change also needs a series of changes to the development schedule. Over the entirety of human history, pollution and the economy seem inseparably related. There are complex and fragmented understandings of the connection between environmental damage and economic development. Economics and environmental research have diverged from the urgency of reductive systems. As we look at the transition of civilization into a circular economy, we need to consider a more integrated structure. The amount of SO2, CO2 and oxide that may contribute to climate change and damage human health has risen in 2013. This research explores the connection between economic development, increasing living standards and environment degradation.

Mohd Afizi Mohd Shukran, Mohd Sidek Fadhil Mohd Yunus, Fatimah Ahmad, Muhammad Naim Abdullah, Syed Muzzameer Syed Zulkiplee, Mohd Rizal Mohd Isa, Mohammad Adib Khairuddin, Mohd Nazri Ismail, Mohd Fahmi Mohamad Amran, Norshahriah Wahab and Nur Adnin Ahmad Zaidi. *Pixel Value Graphical Password Scheme: K-Means as Graphical Password Fault Tolerance*

Abstract: Pixel value access control (PVAC) was introduced to deliver a secure and simple graphical password method where it requires users to load their image as their password. PVAC extract the image to obtain three-octet 8-bits Red-Green-Blue (RGB) value as its password to authenticate a user. The pixel value must be match with the record stored in database or otherwise, the user is failed to authenticate. However, users which prefer to store images on cloud storage would unintentionally alter and as well as the pixel value due to media compression and caused faulty pixel. Thus, the K-Means clustering algorithm is adapted to fix the issue where the faulty pixel value would be recognized having the same pixel value cluster as the original. However, most of K-Means algorithm works were mainly developed for content-based image retrieval (CBIR) which having totally opposite characteristics from PVAC. Thus, this study was aimed to investigate the crucial criteria of PVAC and its compatibility with K-Means algorithm for the problem. The theoretical analysis is used for this study where the suitable characteristics of K-Means is analyze based on PVAC requirements. The compliance analysis might become a referencing works for digital image clustering techniques adaptation on security system such as image filtering, image recognition, and object detection since most of image clustering works was focused on less sensitive image retrieval.

Mohamad Rahimi Mohamad Rosman, Noor Masliana Razlan, Amira Idayu Mohd Shukry, Noor Azreen Alimin, Nurfatihah S Baharuddin and Nik Nur Izzati Nik Rosli. *Development and Validation of Instrument Measuring Referencing Competencies and Individual Performance*

Abstract: Referencing competencies are the knowledge, skills, and ability to effectively managing individual's reference sources. The importance of referencing competencies has been widely regarded in the literature. However, there is a scarcity of research focusing on referencing competencies; research is focusing on general competencies of users. Therefore, the purpose of this paper is to develop and validate an instrument to measure referencing competencies and its impact on individual performance. The research was conducted on several empirical phases. First, list of predictors and dependent variables was formulated based on previous similar studies. Second, a pilot instrument was developed based on the variables that has been identified. Third, the instrument was validated by an expert review process. Finally, the face validity was conducted among potential respondents, before reliability analysis was conducted to determine the reliability of the instrument. As a result, a valid instrument to measure referencing competencies and individual performance was produced, consisting of 5 variables and 24-items. The instrument could be employed to measure the level of referencing competencies among undergraduate and post graduate students, as well as its impact towards individual performance.

Noor Aslinda Abu Seman and Nurazwa Ahmad. *Understanding Technology Readiness Factors Influencing Customer Experience towards Continuance Usage Intention of Grab Application in Malaysia*

Abstract: Through its years of service, the Grab application in Malaysia may have had some failures and technological difficulties that may affect the experience of customers when using it. Few research focused on technology readiness factors on the implementation of the Grab application and how it affects the use of the application on overall consumer experiences. In spite of the lack of continual intention studies in the field of mobile apps, there is still a gap to enhance understanding of the individual's technology readiness and users' experience of the application, thus implicitly leading the customer to continue using the Grab application. The aim of this study was therefore, to measure the impact of the technology readiness factors on customer experience and, consequently, the effect of customer experience on the continuance usage intention of Grab application. Data was gathered via online questionnaires from 270 respondents and evaluated using SPSS and Partial Least Square structural equation modelling techniques. The findings showed that the technology readiness factor had a substantial impact on the customer experience and that the customer's experience had a significant effect on the continuance usage intention. A test of mediation also confirmed that customer experience mediated the relationship between technology readiness factors and continuance usage intention.

Mudiana Mokhsin, Amer Shakir Zainol, Nur Syahirah Addenan, Wan Adilah Wan Adnan, Mohd Husni Mohd Som and Shariza Mohd Said. *5G Technology Readiness in Education among Malay Bumiputera Students in Shah Alam*

Abstract: Technology evolved quickly over the decades through research and innovation. This latest technology is called 5G. Besides, the mobile technology has grown swiftly where the usage mobile technology tools such as smartphones, tablets computer, and laptops were increasing especially among students. Most of the students own mobile devices for educational purposes; during their learning process where to send/receive emails, download lecture notes, stream online videos. Consequently, mobile learning (M- Learning) takes place in providing new ways of learning. Apart from that, Augmented Reality (AR) also has becoming one of the technology tools used in education since it can access it anywhere this is because of the existence of mobile technology. Many studies show these technologies improved the students learning process and motivates them to learn more either inside or outside the classroom. However, there are some challenges to make full use of these technologies because of the current network technologies. For example, the challenges in mobile technology are Internet connection slow, network unreliability, and insufficient bandwidth. Meanwhile, for AR technology facing some challenges on providing real-time response and high latency. Therefore, with the help and support from new 5G technology may reduce and enhance the mentioned challenges. MCMC stated that 5G implementation can improve the quality of life by providing better healthcare, transportation, smarter cities, and education all of which will enable Malaysians to be more productive for a longer period as life expectancy increases. Thus, it is imperative to investigate the readiness of Malay Bumiputera students before implementing 5G technology in education since the population of them in Shah Alam is huge. Hence, in this study an appropriate model was applied to identify the 5G technology readiness in education among student with four hypotheses by using Technology Readiness Index (TRI) model. It consists of Optimism and Innovativeness which are the contributors to 5G technology readiness whilst the Discomfort and Insecurity are the inhibitors to 5G technology readiness. The results of study indicate that Optimism has a positive significant effect on the 5G technology, but Innovativeness, Discomfort and Insecurity has no significant effect. Thus, to improve the design of 5G technology readiness model for further improvement. Lastly, this study finds that implementing 5G leads to better learning performance and helps university to be prepared by leveraging on the 5G as it will be commercially used by 2021.

Hana Munira Muhd Mukhtar, Yasmin Yahya, Azizah Rahmat and Roslan Ismail. *Damage Cost/Value Clustering in Timber Harvesting Decision Making for Sustainable Forest Management*

Abstract: The most important factor to ensure forest regrowth strongly relies on minimizing damage as well as maintaining an adequate quantity and quality of residual stands. The main objective of this study is to propose a new method that promotes forest regrowth and reduce damages due to logging activities for sustainable forest management. The two primary elements introduce in this new method are 1) to determine the minimum damage cost/value to the residual trees and 2) forest clustering to retain areas of unlogged forest for preservation. The first element that this research highlighted is to determine the minimum damage cost/value to the residual trees according to tree felling direction. In addition, to retain areas of unlogged forest for preservation; this research focused on the division of logging area into clusters where only certain clusters will be affected in a logging operation and the rest are conserved.

Muhammad Naim Abdullah and Nurhafisah Baidilah. *CCMTV: Android Parental Spying Apps Utilizing Child's Phone Camera and Microphone*

Abstract: Bullying, skipping classes and missing child case are still very prevalent in Malaysia even the police have involved and took some action. For those children who go to school or playground without parent accompany, there is a risk for them went missing, being bullied and molested outdoor either intentionally or unintentionally. There is a need for the parent to monitor their child and even know their child's location when they are outdoor. Thus, the ideas of the proposed system are to help the parent to monitor and keep track of their child's location when the child is prone to danger. This paper discussed about development of android-based application named Parent's-CCMTV. This application was developed with the intention to help the parent to monitor their children since many of today's parent was busy and have little supervision on their children. The android parental spying app is a monitoring app that can view and listens to children's surrounding and tracks their GPS location. This system requires both of the child and parent application to be operated under a stable internet connection. It is an Android development project that use the access permission of the android devices to work as a spying app which are dependent on the Google API and at the same time does not require device rooting. A study on the similar monitoring apps based on the top five parental control apps in 2019 has been made to find limitations to be enhanced. The development of the app is using the client-server architecture model where the client is both the parent and the child while the server is using the Firebase server. This system also uses the media server for its live streaming capabilities. The system development methodology chosen for this system is structured evolutionary prototyping with increment method and the only hardware needed for this project is the android smartphones and a laptop for development. The development of this application was done with Android Studio platform. This system only limits parent on a passive and stealth monitoring but not to apply restrictive control on their kid's smart-phone usages.

Khairani Majid, Suzaimah Ramli, Zaharin Yusoff and Sharifah Aishah Syed Ali. *Prediction of Congestion Using Basic Traffic Unit*

Abstract: In any form of traffic, whether it is physical or digital, the main problem that sparks a lot of interest for researchers is congestion. This paper discusses a study of congestion around toll plazas. A newly formulated model called Basic Traffic Unit (BTU) is introduced from previous research. BTU is a representation of a basic network connected to form a larger network. A simulation study is conducted and some queuing theories are applied to calculate the measure of performance. Two sets of data from different modes of toll payment are collected. The same two types of payments are simulated and the measure of performance is recorded. The two types of payments from the collected real data are used to calculate the measure of performance using the formula developed by the BTU. This study demonstrates that the results from simulated data can be used to compare with the results from the real-time data using the formula developed by a static model of BTU to predict possible congestions. Comparing results from both methods validates the claim by BTU that it is able to predict congestions.

Nuraini Shasmaimon, Noor Afiza Mat Razali, Norulzahrah Mohd Zainudin, Muslihah Wook and Khairul Khalil Ishak. *Vehicles Congestion Prediction based on Machine Learning Techniques Using OpenCV and Orange*

Abstract: The rise in vehicle use as a means of transportation contributes to transportation problems occurring in big cities, which includes traffic congestion. The objective of this paper is to provide an insight on the prediction of traffic congestion by collecting the vehicle speed, total number of vehicles and time based on two pre-recorded videos of congestion and non-congestion scenario for a duration of 30 seconds. Methodology used in this experiment is by the use of OpenCV-Python to calculate and collect speed and the total number of vehicles in which these data will then be processed and analyzed by using Orange with the use of machine learning (ML) techniques. ML techniques used are Decision Tree, Naive Bayes, Random Forest and Support Vector Machine (SVM). The results of this experiment illustrate that ML technique that shows the best and most accurate for congestion prediction is Naive Bayes at 94.29%. Meanwhile, Decision Tree at 82.86%, Random Forest at 80% and the lowest accuracy is SVM at only 20% for congestion prediction. All data processed are from a set of training data, where the correct classification has been determined beforehand. This study contributes to the effectiveness and accuracy of the congestion prediction of the method, which can be used as a platform for future research to improve traffic congestion predictions.

Muhammad Naim Abdullah and Muhammad Amin Sahari. *Digital Image Clustering and Colour Model Selection in Content-Based Image Retrieval (CBIR) Approach for Biometric Security Image*

Abstract: In this paper, we mainly discuss about the Digital Image Clustering in Content-Based Image Retrieval (CBIR) approach for biometric security. The main focus in this paper is to collect and gather as much as information about the technique for feature extraction in order to reduce the semantic gap problem in Content-Based Image Retrieval (CBIR) to be implemented in biometric (face recognition) process. Several general features of Content-Based Image Retrieval (CBIR) have been explained and discussed in this paper such as colour features, texture features, and shape features. From the preliminary study conducted earlier, colour features has been selected for the implementation of features extraction. In terms of biometric image features extraction implementation, image features of facial image will be extracted and stored in image feature database. Next, the query image will be processed in the same way as images in the database. Then, the matching is carried out on the feature database. On top of that, the common algorithm of colour features has been discussed as well to select the suitable colour model to be used. Based on the finding, the Red Green Blue (RGB) has been chosen as the selected colour model. The summarization regarding performance study of Content-Based Image Retrieval (CBIR) algorithm based on RGB colour features selection has been included in this paper. The purpose of that performance study is to analyze the advantages and limitations of implementing the RGB colour model in the Content-Based Image Retrieval (CBIR) technique. Other than selection of the general features of Content-Based Image Retrieval (CBIR), the selection and nomination of the clustering algorithm is very important in order to provide a greater Content-Based Image Retrieval (CBIR) system. Several common algorithms such as K-means, Isodata, and KHM from the Partitional Clustering Algorithm has been discussed in detail in this paper.

Nabilah Filzah Mohd Radzuan, Mohd Norshahriel Abd Rani and Kai Di Oh. *Prototype of Predictive Kuala Lumpur House Pricing System Through Neural Network Technique*

Abstract: Kuala Lumpur is the capital of Malaysia, and relative price levels are higher than elsewhere. Nowadays, real estate is a priority for buy and invest. While the prices are high, the returns are high. The rental yield in Kuala Lumpur is as high as 6.21% and rising, many people are interested in real estate in Kuala Lumpur and want to buy the best houses at the lowest price for investment. Many agents raise the price higher to earn a higher profit, causing consumers to spend a lot of money or even buy at a high price and sell at a low price in order to reduce the loss. The research focus on visualizing of prediction on Kuala Lumpur house price by implementing data mining techniques in expression user about the current trend of real estate and regional housing price forecast. The prediction yield will be visualized in a form of system. The system will display information about the property based on the investor's investment status. User can choose to predict their house value in this system and search for others type of property. System filter the data and show the result of the minimum, maximum and average value of house for user.

Mohd Najib Abdul Ghani Yolhamid, Mohd Norsyarizad Razali, Mohd Azzeri Md Naiem, Mohd Shukri Mohd Yusop, Ahmad Mujahid Ahmad Zaidi and Noh Zainal Abidin. *Developement of Energy Ship Platform and Data Aquisition System for Far Offshore Wind Energy Conversion*

Abstract: The energy ship is a concept for offshore wind energy capture which has received very little attention until today. To this date, there had not been yet an experimental proof of concept. In order to tackle this issue, an experimental platform and data acquisition system has been developed. A 5.5m long sailing catamaran served as a platform equipped with a 240mm diameter water turbine. The energy ship platform has been tested several times to investigate the workability of the platform and data acquisition system. Results show that energy ship platform and data acquisition system is working properly as per design.

Mohd Zaimmudin Mohd Zain, Rosmaizura Mohd Zain, Ainon Ramli, Hanisa Hassan, Norhasliyana Hazlin Zainal Amri, Sarah Wahida Hasbullah and Mohd Hafiz Drahman. *The impacts of the Project Runway reality television series on Muslim fashion consumers*

Abstract: The fashion industry is growing, regardless of its approach to influencing trends and styles. Consumers are able to look for new fashion trends and fashion inspirations via different platforms and sources, including by watching the Project Runway reality television series on websites, Netflix, or YouTube. However, most of the fashion styles displayed are based on Western styles; this may tarnish the show's image for Muslim consumers due to the clash between Western and Islamic styles. Thus, this study is among the earliest to explore the impacts of the Project Runway series on Muslim fashion consumers using a qualitative approach by conducting semi-structured interviews with 15 respondents. The outcomes show that this reality television series has a positive impact on Muslim consumers, regardless of the clashing ideas of fashion. Results show that Project Runway is one source Muslim viewers use to upgrade their fashion knowledge and styles. Moreover, this study also indicates that Muslim consumers' fashion is evolving as they accept the clashing ideas of Western and Islamic styles, and finally, that Project Runway is a good promotional platform to showcase modest wear to the world.

Abdul Rahman Zainal Abidin, Masyarah Zulhaida Masmuzidin, Nur Syahela Hussein and Mahfuzah Mohaidin. *VIRTUAL HAJJ – THE DEVELOPMENT OF VIRTUAL ENVIRONMENT FOR LEARNING HAJJ AND UMRAH*

Abstract: Performing Hajj is the fifth pillar in Islam. Every Muslims who has sufficient conditions (ability) must performing this Ibadah once in their lifetime. Before performing Hajj and Umrah, all Malaysian are compulsory to attend a special course organized by Malaysian government like Tabung Haji and non-government organization (NGO). This course is held to increase participants' understanding about the Ibadah. Despite using conventional method, lesson and practices about Hajj and Umrah can be done by using technology like Virtual Reality. This technology has been found can help enhance the outcome of the courses, as this course is quite complicated and difficult to understand. Therefore, the objective of this study is to develop a virtual environment that provide learning materials on how to perform Hajj. This study used constructive design of successful technology in order to attract user interest in using Virtual Hajj as a learning tool. ADDIE Model which consists five phases (analysis, design, development, implementation and evaluation) has been used for the development purposes. Meanwhile, for evaluating Virtual Hajj, a set of questionnaires has been distributed to 16 respondents. Based on the evaluation, it has been found that user still need to adapt with the new learning environment. Despite that, the finding also showed that the positive feedback from the participants and overall activity had a positive effect on them.

Rozita Husain, Norshahriah Wahab and Mohd Syuqrie De Gracious. *What Artificial Intelligence (AI) Technology Can Do to Green the Malaysian Automotive Environment? A literature Analysis*

Abstract: Today society faces an ever-increasing range of technical problems, for example: Computer science, computer technology, digital technology, jargon, programming, and artificial intelligence. The future has been taken from the past industrial revolution, which, by harm to the well-being of our world, through economic growth, is paying for the present. Today, the technology revolution must break this loop, and sustainable economic growth must be achieved. Artificial Intelligence (AI) has an immense potential to be a significant weapon in attempts to dissociate economic expansion from rising carbon releases. With advanced technology, there is a path to a sustainable, equal, and prosperous future. The biggest gains that we can see in the map of nations are that many businesses already understand AI well. A need for more pollution control. Outlines, the development of policies, the importance of edification and the guidance of new skills and smooth changes in the job sector must all come together with a sense of shared responsibility as necessary to solve these problems collectively, perhaps especially because AI awareness will not only be shaped by the technology field. Therefore, this research is only the first step toward a greater discovery of how AI can create a more prosperous opportunity for the automotive industry in Malaysia. We have more priorities, however, than to push scholastic exploration forward. In this situation, national action on climate change and nature should be a priority. Discovery must be a sign of the end. We hope that attempts will be made to help make the Fourth Industrial Revolution a forward-looking era that will not only make society and the nation prosperous.

Muhammad Ramzul Abu Bakar, Mat Razali Noor Afiza, Muslihah Wook, Suzaimah Ramli and Mohd Nazri Ismail. *Evaluation of Industrial Automation Acceptance Model for Manufacturing Sector Towards Adoption of Industry 4.0*

Abstract: The full adoption of Industry 4.0 in the manufacturing sector is undoubtedly challenging because numerous factors that must be considered by organization. It is important to note that to transform to Industry 4.0, organization should first focus on the human component of their system. Surveys have shown unsuccessful and failed attempts at adopting Industry 4.0 are due to the lack of digital culture within the organisation. Hence, this paper examines the established integrated model of Technology Acceptance Model (TAM) and Technology Readiness Index (TRI) to evaluate and predict the behavioural intention to use of industrial automation technologies in the manufacturing sector. The outcomes of this evaluation are expected to contribute towards a better understanding of Industry 4.0 technology acceptance among the organization and to ensure smooth adoption of the system in their manufacturing facility.

Amirah Surayya Khairol Azahar, Nurulasma Razali, Mohd Rizal Mohd Isa and Aznida Abu Bakar Sajak. *Portable Pilgrim Tracker*

Abstract: In huge congregation, a number of pilgrimages went missing because of they got lost or other causes. Cases like panicking due to getting scatter around from the group or getting lost and cannot find the way back happens daily during the holy seasons. To accommodate this problem, Portable Pilgrim Tracker is proposed in this paper to overcome those missing pilgrimages cases. Portable Pilgrim Tracker is a monitoring and tracking device designated to be able to detect the user's location and heart rate in real-time basis. By using Wi-Fi technology as the medium of data transmission, the data is collected from the GPS module and pulse sensor Arduino and the information such as real-time location and heart rate of the user and will be sent to the guardian's Blynk mobile application. With the usage of this portable pilgrim tracker, it is expected that this will be able to assist the mobile application user (guardians/travel agency staff) with screen of live maps about pilgrim's location and their heart rate in order to avoid any unwanted consequences such as missing pilgrim and health compilation.

Muhammad Asyraf Abdullah, Noh Zainal Abidin, Zulkifly Mat Radzi, Mohd Arif Ahmad, Vikneswaran Munikanan, Mohd Norsyarizad Razali and Neza Ismail. *RISK ASSESSMENT OF WAVE ENERGY CONVERTER PROJECT AT KUANTAN PORT, PAHANG*

Abstract: Harvesting energy from ocean waves remains an untapped resource and is considered a new methodology in Malaysia's renewable energy. This research is based on a Kuantan Port project that used Wave Energy Converter (WEC) as a platform to generate energy from waves and convert it into electricity. The purpose of this research is to conduct a risk assessment before the execution of the project. Started from risk identification and planned the mitigation to reduce the risk grade. These mitigations are used to monitor the project to avoid any accidents during construction and installation. Qualitative analysis is used to gather possible risks that impact the project and propose actions to mitigate them. The assessment also considers the Likelihood, Seriousness, and Weightage to determine the risk level. The risk assessment is divided into six clusters: project management, hydrography, mechanical, electrical, civil, and security and safety. After analysis, each cluster has feedback on the risk assessment and their risk grade. This research found that the risk grade is at grade C, which needs the risk assessment of this project to reduce the Likelihood, Seriousness, and required mitigation actions. After the mitigation plan is applied, the grade of risk is reduced to N.

Rosmaizura Mohd Zain, Ainon Ramli and Mohd Zaimmudin Mohd Zain. *Evaluation and Prioritization of GSCM Barriers in Food and Beverage Manufacturing SMEs Using AHP*

Abstract: The manufacturing sector is one of the major contributors to Greenhouse Gases (GHG) and seems to be highly challenged to reduce their environmental impacts. The manufacturing sector's GHG emissions highlight the misuse of environmental assets, waste, high usage energy and water, and pollution. Green Supply Chain Management (GSCM) is amongst the strategies for overcoming the environmental issues in order to attain a supportive environment and risk-free. This paper aims to prioritize the essential barriers that prevent the GSCM implementation in Malaysian Food and Beverage (F&B) Small and Medium Enterprises (SMEs) by using Analytic Hierarchy Process (AHP). In this study, based on the barriers that were identified through the literature review and interview with expertise in this field, an AHP framework, and AHP survey were executed. This study contributes to helping the manufacturing industry in selecting the best approaches to reduce the impact and protecting the environment as a whole. Based on the findings, organizations are able to identify the weaker areas and can formulate strategies to improve the effectiveness of GSCM implementation programs in F&B industries.

Muhamad Lazim Bin Talib, Norshahriah Abdul Wahab, Amalina Farhi Ahmad Fadzlah, Sharifah Aishah Syed Ali, Mohd Nazri Ismail and Hassan Mohamed. *Heterogeneous Bad Weather Image Enhancement Using Colour Correction*

Abstract: A clear and bright atmosphere is much needed when humans use imaging equipment outside. Bad weather conditions due to haze and fog cause the resulting image to fade and blur. This is because the color in the image has undergone a condition known as color fading. The method currently used can be divided into 2 main methods, the first is the use of many images and the second is the use of one image. However, the first method requires more than one image to be taken which causes the image improvement process to increase. For the second method, only one image is required. However, the challenge in this method is the determination of the thin layer on the image to determine the element of interference that causes the image to fade and blur. Various methods are used for this one image method. However, there is still an error that arises which is a change in the main structure of the image namely color and tone. The same goes for the halo effect that arises as a result of this improvement process. In this study, the use of D-Hazy, FRIDA and FRIDA2 datasets. This study uses the method of interweaving the color thinning to solve the problem of image interference that causes fading and blurring. This method maintains the main structure of the image and prevents the occurrence of halo effects by evaluating using the ssmi method. The degree of image recovery was assessed based on enhanced color series improvement using color series evaluation method.

Muhamad Lazim Bin Talib, Suresh Thanakodi, Norshaheeda Mohd Noor, Norshahriah Abdul Wahab, Amalina Farhi Ahmad Fadzlah and Nur Hazimah Nordin. *Monitoring and Control Marine Activity Using Intelligence System*

Abstract: Marine activities at sea are very popular with the people of the world. Various marine activities such as swimming, boating, fishing and even shipping are often done on the coast and sea. However, loose control and monitoring cause various problems such as accidents, marine life threats and even pollution. The current method uses a vessel monitoring system as well as a geographic information system. This method of course uses high costs because the information obtained is international. There are also barriers to obtaining sensitive information. This makes it difficult for local authorities to obtain uniform information on centralized water activities. This study proposes a smart and centralized system of control and monitoring of water activities. This system can control all water activities with the use of mobile equipment installed on the body of the user or even the water vehicle used. The system will control and monitor all activities centrally. In the event of an emergency or violation of the law, this system will deliver an immediate message to the authorities. The system is evaluated based on user distribution and control environment. System performance audit shows that this system method successfully controls and monitors water activity within 1 kilometer from the coast.

Augustine Lee Yew Chuong, Noor Aslinda Abu Seman and Noreina Kepal. *The Relationship between Green Hotel Practices and Hotel Benefits among Malaysian Hotels*

Abstract: Green hotel practice is one of the most recent practices within the hotel sector. Many hotels start to implement green hotel practices while protecting the environment. It is found that there are other importance and benefits to the green hoteliers. Therefore, this study aims to determine whether there is any relationship between green hotel practices and hotels' performances. This research was done by using quantitative method and distributing questionnaires via email to hotel managers. A total of 117 hotels rated from 3 star to 5 stars, operationally based in Kuala Lumpur, Malaysia had been selected as samples of this study using purposive sampling technique. The reliability test and normality test were conducted after getting the data to examine validity of data. Linear regression analysis was used to analyse the relationship between green hotel practices and hotel benefits. The result of the study indicated that the hotel achieved financial and non-financial benefits with the implementation of green hotel practices. Conclusively, this study would contribute positively for future researchers to explore the field of green hotel practices and hoteliers that would pursue green practices in their daily operation.

Nor Azlin Rosli, Edzreena Edza Odzaly, Rosdiana Abd Razak, Mudiana Mokhsin and Muhammad Nazmi Omar. *Dyslexia Assistive Technology Recommendation System for use during COVID-19 Pandemic*

Abstract: During this challenging time, thousands of children had to switch to remote learning when they are at home. As such, this has impacted the children learning process at school and involved parent's engagement to support their children's learning. Dyslexia Assistive Technology Recommendation system is being developed to assist the problem faced by the parent who does not familiar with assistive technology that can be used in assisting their child. As most of their learning is at school, the parent is not aware of the assistive technology that can be used to assist their child at home. This system is developed using a modified waterfall model methodology. The project aim is to help in recommending the suitable assistive technology that can be used by the parent to assist their child while learning at home. At the end, the paper highlights the flow of process and user interface of the system which shows the type of dyslexia the child had along with the suggestion of the suitable assistive technology.

Irma Syarlina Che Ilias, Suzaimah Ramli, Muslihah Wook and Nor Asiakin Hasbullah. *Social Media Image Gratifications : A Thematic Review on Motives of Use*

Abstract: Understanding why people are using social media provides insight into the nature of behaviours in social networking. Theory of uses and gratifications posits that audiences are actively choosing media to suit their needs. Motivations are explained by the question of why users are involved in social media and what gratifications they derive from their use whether they prefer to use images than text or even videos This paper explores a thematic review of literature regarding motives on image use in social media from 2017 to 2020. The paper's strategy was investigated through a comprehensive review paper on the use of images in social media and analysed using ATLAS.ti 8 software. The findings of the code-to-document report in ATLAS.ti 8 show that the motives on image use have highlighted several patterns or themes in the literature. Results benefit the future direction of research and identify the gap for future solutions on the use of image in social media in the context of gratifications.

M. Rizal M. Isa, Mohd Faizal Mustafa, Ummul Fahri Abdul Rauf, Mohd Nazri Ismail, Mohd Afizi Mohd Shukran, Mohammad Adib Khairuddin, Norshahriah Wahab and Noor Zuraidin Mohd Safar. *Student Perception Study on Smart Campus: A case study on Higher Education Institution*

Abstract: With the current development of science and technology, big data technology, the Internet of Things (IoT), cloud computing, and mobile Internet in Malaysia, it is time for smart campuses to be established and Higher Education Institution (HEI) should not have left behind. The smart campus is the upgraded version of a digital university, providing a better academic environment to the lecturers and students. A smart campus enhances education, research, design, and delivering the appropriate higher learning modules to pursue the latest developments in ICT technology that can drive future educational growth and innovation. In short, the smart university is to construct a safe and secure, stable, environmentally friendly, and energy-saving campus. However, so far, there is no standard smart campus concept to follows. This research begins with finding the student's understanding of smart campus. Secondly, the student's perceptions on the smart campus from the various application is measured. Finally, the significant challenges facing the implementation are defined. A total of 912 students from local HEI have participated as valid observations for data analysis. The results show the students have selected 11 applications as high impact based on the Relative Importance Index for smart campus implementation. Future work could focus on the feedback from the staff and lecturers' points of view to propose a solid conceptual smart campus framework.

Nor Azlin Rosli, Muhammad Imran Mohamad Sasudin, Mudiana Mokhsin, Nor Adora Endut and Khyrina Airin Fariza Abu Samah. *Early Intervention: Developmental Disorders Diagnosis System*

Abstract: Developmental disability are disorders caused by a deficiency in physical, learning, language, or behavior. These conditions create many difficulties for individuals in certain areas of life, particularly in language, mobility, learning, self-help, and independent living. Early intervention offers comprehensive assistance to children and families, especially children with developmental disabilities. Due to the COVID-19, these services faced difficulties in delivering direct contact solutions, including early detection and diagnosis following social distancing measures such as the movement control order. This project is being directed to assist parents and teachers to detect either the student is having any developmental disabilities mainly focusing on three types of developmental disabilities, which are dyslexia, autism, and ADHD (Attention Deficit Hyperactivity Disorder), by providing a set of questions to both parents and teachers as an early phase of diagnosis of the children. The project aims to develop a web-based developmental disorders diagnosis system for parents and teachers with children from 5 to 6 years old. In order to accomplish in developing the system, waterfall model is applied. This system produces similarity percentages based on parents' and teachers' answers, and the diagnosis results. In the future, this project can grow more significant by collaborating with healthcare organizations.

Nor Azlin Rosli, Mohamad Hafiz Mohd Yusof, Nor Azylia Mohd Azam, Mudiana Mokhsin and Nor Adora Endut. *Dyslexia Screening and Learning Style Recommendation Web-based System*

Abstract: Dyslexia refers to an impairment in reading, writing, and phonological aspects and is usually associated with language. Without proper screening, students may end up facing difficulties in their studies near the future. Currently, schools in Malaysia use an instrument called Instrumen Senarai Semak Diskleksia (ISD) which assesses either the student is a high probabilistic dyslexic student or not and whether the student needs further medical investigation. The manual nature of this instrument presents challenges for the teachers performing the assessment. Due to the large number of students being assessed it takes time and effort to tabulate the results. Also, it is difficult to store and retrieve efficiently. Further, the teachers face challenges in identifying the students' suitable learning styles. The onset of the COVID-19 pandemic which restricts face-to-face assessments exacerbates these challenges and highlights the need for an online assessment system. To overcome these problems, a web-based system to screen students with dyslexia and assess their learning style preferences has been developed using the VARK Model of Learning Styles. This system was developed using the waterfall model, encompassing requirements gathering, system design and system development. Future work may include an enhanced analysis of the generated results and email generation capabilities.

Alia Amira Abd Rahman, Muhammad Hafizie Roselamat, Masyarah Zulhaida Masmuzidin and Nur Syahela Hussien. *Ngeteh : Responsive Website Design and Usability Testing for Street Vendors*

Abstract: People's desire for a local light snack or also known as 'gorengan' made them go all the way to their favourite stalls to quench their craves. But it is frustrating once they are at the stall, but it is closed for the day. Many of us has this experience, right? Not just waste of time, it is also waste of fuel and energy. Thus, the purpose of this project is to develop a responsive website named 'Ngeteh' so that the public is informed on the business hour of the said road merchant, besides their contact information. The goal is to build up a versatile well-disposed site of constant road merchants in helping the street vendor with their own personal web presence while informing the public about their operating hours. This responsive website will also be utilized by the business owner to update the status of their stall on that day whether they are open or not for the day. This study will be utilizing Agile technique, where the strategy is centered around experimentation structure. Convenience testing technique is utilized during data collection in which 32 surveys are circulated to the respondents. The data gathered were then will be examined and analysed to see if the responsive website meet the user's requirements. With the presence of this website, the users will have more certainty to go to their stalls to fulfil their craves, and the road sellers will be ready.

Alia Amira Abd Rahman and Fatin Nur Naddirah Mohd Syahrizal. *2D Animation Interactive PSA Video: School Bully*

Abstract: Bully is gaining a foothold in the society, school bullies among students should be kept under control. It is no longer can be overlooked as such action may lead to fights, serious injury or even death. The purpose of this study is to create a 2D Animation Interactive PSA (Public Service Awareness) video on school bullying, to raise awareness among students about school bullying, and to test the efficiency of interactive video in educating the viewers where users can jump to different sections of a video and display content that suits their relevance. The ADDIE (Analysis, Design, Development, Implementation and Evaluation) model was used as the research methodology for this project. Based on the assessment study, 68.2 percent of students strongly agreed that some insight and information can be given by interactive video. 79.2% strongly accepted that this video helps in explaining how bullies occurs. This interactive video's 70.8 percent assessment allows students to realise what are the impact of being bullied is. Thus, this 2D Animation Interactive Public Service Awareness has helped in raising awareness of school bullying among students.

Mahfuzah Mohaidin, Nur Syahela Hussien and Masyarah Zulhaida Masmuzidin. *A Review on the Impact of Social Media towards Entrepreneurship Development in Malaysia*

Abstract: In recent times, social media is a form of interactive communication of business platform which presents a free and efficient alternative to promote goods and services directly to customers. Most used social media platforms are Facebook, Instagram, YouTube, Twitter, blogs, social networks, content communities, forum, and bulletin boards. For entrepreneurs, social media has become an important tool to keep in touch with suppliers and customers, promoting brands or business profile, improve customers' satisfaction and generally to save cost in running business. Despite increasing numbers of online businesses registered with SSM (Companies Commission of Malaysia), entrepreneurs in Malaysia still relies on traditional approach or offline business such as- renting kiosk, booth or shop lot that requires paying bills and rental fees. Thus, the objective of this study is to delineate the impact of social media towards entrepreneurial development in Malaysia. Therefore, this study will hopefully provide some insights for local entrepreneurs and marketers to utilize social media as a business platform more effectively, cost efficient and able to compete in the global market. This study is based on literature reviews and synthesizing data and information from the findings of past research. Findings in this study will be the foundation to entrepreneurs who use social media to design and implement their business platform towards entrepreneurship development in Malaysia, which provides them opportunity to collaborate and share knowledge within their network.

Dedi Epriadi and Mardansyah Mardansyah. ***Government Policy On Student Behavior Program For Learning School Students To Increase Learning Achievement***

Abstract: This research was conducted due to several problems including: Still lack of socialization to students in schools about scholarships, Submission of scholarships that are not on target, Scholarships received by students are used for other purposes, not education. This research was conducted to 60 people involved in UPTD Education and Culture of Rimbo Tengah District of Bungo Regency using Survey method with qualitative descriptive approach with aim to know how far government policy toward scholarship for elementary school student to improve learning achievement.The results of research and discussion show that this Government policy has been running well but not yet maximal. Through this scholarship program it is expected that school-aged children from poor households can continue their schooling and do not drop out of school so they can improve their achievement in learning, can help fulfill their learning needs, support the nine-year compulsory education program and support the school program. Obstacles faced by UPTD Education and Culture in policy towards scholarship program in order to improve student's learning achievement are: Still lack of socialization to students in school about scholarship, Submission of inappropriate scholarship, Money received by students used for other purposes, not field education. Efforts undertaken include: Improving socialization to students in schools about scholarships, Evaluating Submission of scholarships to students, Providing understanding to students and parents that Scholarships received by students are used for educational purposes.

Nor Azlinah Md Lazam. ***Development of Academic Attendance System Using Voice Verification***

Abstract: Based on the fact that all Human Voices are different, where every individual's voice contains unique characteristics that can be distinguished from others by using special analysis, voice verification can also be used for Biometric recognition of individual. The aim of this project is to develop an automated attendance process captivating and student databases record maintaining using C++ programming and Voice Verification Technology. The Input speech will undergo a series of voice recognition process namely Speech Analysis, Feature Extraction using Linear Predictive Coding technique (LPC), Speaker Modeling using Gaussian Mixture Model technique and decision logic evaluation (template matching technique) with respect to the FAR (False Acceptance Rate) and FRR (False Rejection Rate) to auto-update the student attendant database that has been developed in MySQL database.

Nornadiah Mohd Khaidzir, Nur Syahela Hussien and Masyarah Zulhaida Masmuzidin. *Enhancing the Malaysia Culture Awareness in Mobile Game Application for Traditional Game (Guli)*

Abstract: Advances in technology and the use of the internet have made it almost possible for traditional games to be accessible and attract game enthusiasts. Following the new era of modernity, different types of traditional games are being redeveloped in an effort to introduce and re-raise the games in Malaysia. The purpose of this research is to promote the traditional Malaysian "Guli" game and to raise awareness among younger digital natives through the use of mobile game applications. Traditional Malaysian games were once one of the most famous games in the time of our ancestors. Our community in Malaysia is rich in various cultures, community games and also traditional games according to their own community in this multi-racial Malaysian society. In line with the modern trends, this research study the development of mobile game application as younger generation nowadays choose to play mobile games instead of physical games. This project has proven in help promoting the traditional games that have long been forgotten by using multimedia elements. Moreover, having traditional mobile gaming application in a fun and interactive way help build awareness in Malaysia culture in order to encourage the importance of sentiment.

Roslinawati Jaafar, Nurashikin Qistina Mohd Idzam and Myzan Noor. *Raising Awareness of Poja Traditional Dance of The Bugis Society using Mobile Application*

Abstract: Poja dance is an artistic heritage that can be found in the state of Selangor that brought by the Bugis to Malaya at long time ago. The recent development of Poja Dance has begun to receive attention by public, especially from performances at official functions organized by the government as well as individuals. However, only the adult generation is active in this art. The acceptance of the younger generation and children is still very sad. Therefore, certain efforts should be made to preserve this art from continuing to disappear in the mists of time. The aim of this study is to create awareness and understanding about Poja dance to the society especially to younger generation. In order to highlight the arts of Poja dance among the new generation a mobile application was created which contains infographic video and Augmented Reality (AR) on Poja dance. ADDIE model was adapted in this research comprises of Analysis, Design, Development, Implementation and Evaluation phases. At the end of this study a user testing is carried out to see if this project accomplished the objectives of this research. Based on the feedback it has shown that this application is effective in creating awareness and understanding about Poja dance to the society especially to younger generation.

Roslinawati Jaafar, Khairul Amar Khalil Azlan and Suhaili Din. *Accepting Autism : An Interactive Documentary*

Abstract: Autism disabilities primarily came in the form of social interaction difficulties, as well as specific interests towards any particular subject. Autism in adults is a relatively unexplored territory. It has been observed that autism is a controversial topic in society as there seems to be lacking in understanding towards them. Documentary is a form of video that captures the real-life aspect of a subject and capable of attracting audiences in order to convey a message. The purpose of this research is to spread awareness among people about the truth of autistic people and quell the negative perception towards autistic people through interactive documentary. Another aim of the research to investigate the effectiveness of using an interactive documentary as ways of spreading awareness about autism in adults. The methodology adapted in this research is ADDIE model which comprises of Analysis, Design, Development, Implementation and Evaluation phase. A user testing was carried out among target audience to identify if this study has accomplished its objectives. Based on the feedbacks, it has shown that the target audience understand the message that are being conveyed by the interactive documentary and was able to spread awareness about autistic adults.

Faridah Yahya, Fadzrol Azua Hazri and Megat Norulazmi Megat Mohammad Noor. *Entrance Monitoring and Authentication IoT Based System*

Abstract: Yearly, crime cases involving house breaks and theft are on the rise. It was reported that even during the Covid 19 breakout, house break was rampant. Due to the situation, this project focused on developing gate monitoring and authentication system for landed houses in Malaysia. The proposed system in this paper used the IoT and embedded image processing technique, where Raspberry Pi is used as the main brain of the system combined with face recognition. OpenCV and Python are used for the face recognition module with Raspbian OS. The system works when a camera detects and capture a face at the entrance, system search database while a message is sent to the owner through Telegram and the captured image is sent to Gmail, if the captured image is not in the database, no entry is granted and otherwise. The prototype system objectives are to notify owner when there is a visitor, identify the identities of the visitor and authenticate the authority for admission.

Manjit Sidhu and Javid Iqbal. ***UX Design Evaluation of an Augmented Reality Dance Training System***

Abstract: Technology advancements has enabled dance to be learnt without mirrors or real dance trainer. Distinctive benefits have been contributed by Augmented Reality (AR) technology. Dance trainers are focusing upon implementing dance analysis systems to enhance dance trainee's artistic skills. AR technology presents new user experience (UX) for learning, instructing, developing and accessing physical dance movements as well as provides scope to expand dance resources and rediscover the learning process. In this research work, we present a novel dance training and analysis system that could help individuals in learning selected dance styles which ignites motivation, matches dance steps/body postures and analyzes the performance. This study explored quantitative data by means of statistical tests validation using pre and posttest questionnaires with participants in using the dance training system that has facilitated in testing the dance body postures and steps at UNITEN.

Ali Ashraf Siddiqui and Dr. Siti Haryani Shaikh Ali. ***Conceptual Framework of Determinants of Blockchain Technology Acceptance in Banking Industry***

Abstract: Blockchain technology was first released in 2009, the mechanism of Bitcoin a digital cryptocurrency as an open-source system. Blockchain was only used as a foundation of cryptocurrency initially, but today, we can see the rise of this new emerging technology being implemented in many industries. In the future, most technologies around the world are expected to use blockchain as an efficient way to make online transactions. It is allowing financial data transactions among distributed parties without any third party. This technology is increasing the attention of consumers, investors, investment industry and regulators. In the future, Cryptocurrency, which uses the blockchain technology, has a high potential to use for transactions or investments. This paper aims to provide a theoretical discussion of blockchain technology acceptance in Banking Industry using the variable model of Technology Acceptance Model (TAM) and The Unified Theory of Acceptance and Use of Technology (UTAUT), identify the factors affecting the acceptance of blockchain in the Banking Industry and presents a conceptual framework for blockchain technology acceptance in Banking Industry. The findings of the study would be useful for the banking industry as well as decision-makers in expanding a better future for Blockchain Technology Acceptance in Banking Industry.

Muhammad Shuaib and Juliana Jaafar. *REVIEW ON RECENT TRENDS AND CHALLENGES IN DEEP LEARNING AND ARTIFICIAL INTELLIGENCE*

Abstract: Artificial Intelligence (AI) is going to shape human civilization differently because AI is increasingly playing a key role in our lives. AI is an Art that facilitate computer, robot or machine to mimic human behavior. While deep learning is a subfield of machine learning which is focused on the structure of the human brain. Deep learning is one of the recent, trending and the emerging field of study and research. Deep learning is revolutionizing every field from robotics to medicine, deep learning has provided an easy solution to many state-of-the-art problems. The recent developments in AI in general and deep leaning in specific are Virtual assistant, Self-driving cars, news aggregation, natural language processing, digital marketing, visual recognition and image recognition etc. Despite of many developments in deep learning, there still exist some challenges. This paper presents a brief survey on deep-learning advancements from the last few decades. This article thoroughly discusses Deep Neural Network (DNN), it also covers different topics i.e. Convolutional Neural Network (CNN), Recurrent Neural Network (RNN), including Long Short-Term Memory (LSTM) and gated recurrent units, auto-encoder, Deep Belief Network (DBN), Generative Adversarial Network (GAN) and deep reinforcement learning. This article also additionally covers the open research issues and recent trends in deep learning.

Nurul Ain Mohd Afizan, Sharifah Aishah Syed Ali, Suresh Thanakodi, Syarifah Bahiyah Rahayu Syed Mansoor and Ahmad Shafiq Abdul Rahman. *Performance Analysis of Research Clusters in National Defence University of Malaysia (NDUM): An Application of Data Envelopment Analysis (DEA)*

Abstract: This paper employs Data Envelopment Analysis to measure the efficiency of seven NDUM research clusters during the years 2018 until 2020. In this study, both output oriented CCR and BCC models were used and compared. The finding showed that 1 out of 7 research clusters was consistently efficient. These efficiency results would be very helpful for university research and innovation management to identify the inefficient research cluster, develop performance strategy and enhance the research cluster's overall efficiency.

Vinitha Karunakaran, Mohana Shanmugam, Jaspaljeet Singh Dhillon and Pritheega Magalingam. ***Modelling The Significance of Social Support, Theory of Planned Behaviour and Trust for Social Capital Growth in Energy Sectors***

Abstract: This study investigates the factors and theories that drive social capital in energy sector. Social capital is a collective asset in the form of shared norms, values, beliefs, trust, networks, social relations, cooperation and collective action for mutual benefit. With the proliferation of social commerce and the maturing of social media, social capital can be acquired and further developed for productive benefits, particularly for energy sectors in Malaysia. In this study, an integrated social commerce framework was developed and evaluated to promote social capital. The framework attempted to define the relationship between the Theories of Planned Behavior (TPB) and Social Support Theory (SST) alongside Trust factors towards promoting social capital development in energy sectors. This research uses PLS-SEM to analyse the data gathered from employee in the energy sectors in Malaysia. The research demonstrates that social capital is present when there is trust and social support among the users and encourages positive changes and benefits for energy sectors' productivity, efficiency and profitability. A survey was adapted and distributed to 100 respondents from the energy sector in Malaysia as a mean to study on the validity and reliability of the research factors. Results indicate that all proposed factors are significant in promoting social capital.

Mohd Fahmi Mohamad Amran, Nurhafizah Moziyana Mohd Yusop, Yuhanim Hani Yahaya, Siti Rohaidah Ahmad and Mohd Afizi Mohd Shukran. ***A Machine Learning Approach Using EEG Signals To Identify Emotions And Performance Level Among University Students***

Abstract: The performance of university students during their academic session are vital to their overall grade throughout their term in the university. There are multiple factors that could lead to the loss of performance, but the foremost factor is their level of emotions. Previous research has shown that to determine the performance of the students, the best way to do so is by analysing their attention levels. With the development of portable Electroencephalogram (EEG) devices and machine learning algorithms, it is easy to obtain the students attention and emotion level during their academic sessions. This paper aims to present a method of obtaining the EEG signals using a portable EEG device and classifying it into the type of emotions that are present in the human brain. The EEG device will obtain the attention level and EEG signals during two scenarios which are lectures/tutorials and exams/quizzes. The signals are then compiled and analysed to determine the emotion labels based on a normalization process that categories the signals into positive or negative emotions. The dataset and labels are then used to train and evaluate multiple machine learning models and a deep learning model in order to determine which model has the best accuracy and performance. The chosen model is then used to predict the emotions of several students during both scenarios and the average emotions are then compared with their average attention to determine the effect of emotions on the students' performance. Hence, this paper will first provide a method on obtaining the emotion labels, followed by the models' development and finally correlating the predicted emotions with the students' performance during their academic sessions.

Erney Nabila Huda Roslan, Fazilatulaili Ali, Syarifah Bahiyah Rahayu Syed Mansoor and Sharifah Aishah Syed Ali. *Factor Affecting National Defence University Of Malaysia (NDUM) Students' Career Path Using Principal Component Analysis (PCA)*

Abstract: This research is conducted to investigate the factors affecting National Defence University of Malaysia (NDUM) students' career path. Students and career are two related entities and have been a very common topic in the live development of teenagers. Academic and co-curricular achievement would define the future of individual. Thus, the correlation between students and career is very significant as they are reported may affect youth psychologically. The aims of this research are to investigate main factors effecting NDUM students' career path by using Principal Component Analysis (PCA). The collected data of 234 final year NDUM students from all faculties were analyzed by using Statistical Package for the Social Sciences (SPSS) software. An online questionnaire via Google Form was conducted to gain the data. The results showed that there were 9 main components influenced NDUM students in choosing their career and "family" was identified as the main factor. PCA method is practically proven to be used in this research to reduce the large number of components to a smaller scale.

Rudi Susanto, Mohd Nizam Husen and Adidah Lajis. *Developing a Portable Laboratory with Integrated Local Wisdom For Physics Education Based on Lecturer and Student Opinions*

Abstract: This study aims to obtain data on the need to develop a physics laboratory based on information technology. Samples involved in answering the questionnaire are from students and physics lecturers across the university in Indonesia. The results of this research discuss opinions from lecturers and students in 3 aspects about laboratory and learning physics, physics laboratory based on information technology, and portable laboratory with integrated local wisdom (PL-ILW). The finding shows that 93.6% of the lecturers and 84.8% of the students strongly agree and mostly agree with the development of a portable laboratory with integrated local wisdom (PL-ILW).

Azman Ismail, Mokhtar Awang, Fauziah Ab Rahman, Fatin Nur Zulkipli and Bakhtiar Ariff Baharudin. *Optimum Welding Parameters for Friction Stir Welded AA6063 Pipe Butt Joint by Taguchi Method*

Abstract: The selection of welding parameters used to run for friction stir welding (FSW) of pipe joint was based on L-9 orthogonal arrays of Taguchi Method. Different welding parameters such as rotational speed, travel speed and axial force are used to produce several good frictions stir welded AA6063 pipe butt joints. For the improved reliability of the products joined by FSW process, the optimum combination of welding parameters needs to be determined. The weld quality is evaluated by high tensile strength and low residual stress profiles. The S/N analysis and Analysis of Variance (ANOVA) are used to find the significant welding parameters that affect weld quality. It is found that maximum tensile strength with acceptable residual stress was produced at the optimal parameters' of 1300 rpm, 5 mm/s and axial force between 5 to 6 kN. The current study thus aims at optimizing welding parameters for high tensile strength with low residual stress formation.

Fatin Nur Zulkipli, Nurussobah Hussain, Saiful Farik Mat Yatin and Azman Ismail. *Critical Success Factor of Trusted Elements for Mobile Health Records Management: A Conceptual Review*

Abstract: Systems of Mobile Health Record Management (MHRM) and Electronic Health Record (EHR) depend on each other and help in maintaining the patients' medical record in digitized format. For maintaining this trust, the relationship among the patients, providers and clinicians needs to be maintained. The present study consists of the understanding of the importance of the trusted elements of mobile health record management implementation in government hospitals as most of the government hospitals are still following the traditional approach in healthcare delivery. To fulfil this objective, the conceptual framework has been developed by evolving the trusted elements while the implementation of mobile health apps in hospitals. The study follows a conceptual review of the critical success factor of trusted elements for mobile health records management. Secondary data have been used and analyzed to justify the objectives of the study. The findings and discussion have been evolved on correlating the existing literature and the analyzed data. This paper has evolved the use of electronic health records in the health organizations for the accessibility of relevant data with timely access for the ease of the patients. The involvement of success factors and its importance in mobile health records management has been clearly implicated in this paper.

Dr. Nur Aisyah Abdul Fataf, Dr. Arniyati Ahmad and Sze Lin Tan. *Implementation Model of Network Security for Royal Malaysian Navy Network*

Abstract: Ever since the existence of Internet, the world has constantly changing and upgrading with evolving technologies. As most of organisations have increasingly migrated to computer and network system, threats and cybercrime rises parallels with the growing network. The need for network security has then been an essential and vital in today's world in order to keep the network protected and secured from any threats or attacks. The security of the network has been a concern since valuable information can be easily acquired through the internet. The concern for security has been tracked back as far as the 1930s where several key events that highlighted the importance of network security. Network security has always been highly associated with identification, authentication and authorization. The definition of network security is to consider the security of the network as a whole and not just concentrating on securing the endpoint.

Atifah Hanim Rosli, Norshahriah Wahab and Syed Nasir Alsagoff. *Student's Preferences of Learning Materials During Unprecedented Online Learning due to COVID-19.*

Abstract: Teaching and learning process in higher education has been affected due to COVID-19 pandemic. Face-to face learning has been transitioned to online learning. This study explored student's preferences of online materials during unprecedented online learning due to COVID-19. Quantitative data were collected from 104 students from Department of Computer Science, Faculty of Defence and Science Technology through online questionnaire. The factors focused in analysing the student's preferences in online learning material's layout with multimedia analytics approach and gamification. The result present how multimedia analytics such as video, audio, graphic and animation with element of gamification in online learning material play a significant role in the cognitive engagement and student's motivation in online learning. Also, respondents preferred online learning materials with element of multimedia such as video and audio than text only. This study presents suggestions on how to enhance online learning materials to improved online learning.

Ahmad Fudhail Iyad Mohd Zainudin, Nor Fatimah Awang, Syahaneim Marzuki, Syed Nasir Alsagoff, Taniza Tajuddin and Ahmad Dahari Jarno. *A Vulnerability Detection Framework for IoT Devices: Smart Lock*

Abstract: Smart Lock are among of the up and rising Internet of Things (IoT), used as a complement to traditional locks in order to make it easier to share keys electronically, rather than physically. Rather than physical risk, connecting Smart Lock to the home to the internet and to each other results in new security and privacy problems, e.g., confidentiality, integrity and authenticity of data sensed and exchange by the devices. Smart door lock is mounted on an existing door and enables users to control the state of the lock with their smartphone. Smart Lock is very much vulnerable to different security attacks that make a Smart Home unsecure to live in and therefore it is necessary to evaluate the security risks to judge the situation of Smart Lock. For a Smart Lock to be successful and achieve widespread use, it needs to gain the trust of users by providing sufficient security and privacy assurance. As in all sectors, maintaining security will be a critical challenge to overcome. As homes are increasingly computerized and Smart Lock being widely used, potential security attacks and their impact need to be investigated. The methodologies used in this report are Information Gathering & Identify Vulnerabilities, Identify & Establish Drivers, Exploitation Phase and Vulnerabilities Analysis with the goal of highlighting vulnerability of Smart Lock based on proposed framework.

Noh Zainal Abidin, Cédric Leblond, Mohd Najib Abdul Ghani Yolhamid, Farizha Ibrahim and Ameer Suhel. *Investigation on the Numerical Hydrodynamic Performance of Deformable Hydrofoil (Applied on Blade Propeller)*

Abstract: The Hydrofoil is a hydro lifting surface that have significance contribution towards marine transportation such as boat, ship and submarine for its movement and maneuverability. Nevertheless, the hydrofoils existed operating in fixed shape National Advisory Committee for Aeronautics (NACA) profiles which depending merely on variation of Angle of Attack (AOA) such as rudder, hydroplane and propeller blade. Thus, this research is concerned on the deformable hydrofoil which aim to be able to modify its NACA profile rather than depending on its AOA. Besides, there is still lacking of knowledge in designing an appropriate deformable hydrofoil as well as not existed in the market yet. In this research, numerical investigation on hydrodynamic characteristic for selected hydrofoil of NACA profiles. After undergo the 2D numerical analysis (potential flow method) at specific condition, several NACA profiles chosen based on the performance of NACA profiles. NACA 0017 selected as the initial shape for this research before it deformed to the optimized NACA profiles which are NACA 6417, 8417 and 9517. Then, the 3D CFD simulations using finite volume method is carried out to obtain hydrodynamic characteristic at 0 deg AOA with constant flow rate. The mesh sensitivity and convergence study are carried out to obtain the consistency, validated and trustworthy results. The final CFD modelled for propeller VP 1304 undergo open water test numerically. The results found that the performance of symmetry hydrofoil NACA 0017 at maximum AOA is not the highest when compared to the other deformed NACA profiles at 0 deg AOA. For the numerical open water test shown that the error obtained on KT, KQ and efficiency are less than 8% compared to the experimental results. It shows that the results were in good agreement and the numerical CFD setting can be used for different deformed profiles in future

Farizha Ibrahim, Mohd Norsyarizad Razali and Noh Zainal Abidin. *International Reference Analysis Covering Human Factors in Royal Malaysian Navy Ship Design*

Abstract: Whenever technologies and individuals connect, there is a vital need for human element information. Human-related factors account for more than 80% of accidents at sea based on studies. Designs that do not meet human factors' needs play a significant role in contributing to human error. By observing the model of the Royal Malaysian Navy (RMN) ship or by direct observation through a visit to the ship, observation of the design specifications, assessing the standards that set the design of the ship, and interviewing users can help to identify how the human factors are reflected throughout the design phase by with reference analysis methodology. Most of the internal data and information about the RMN ship's design are restricted. Thus, international reference in terms of design standards and guidelines, rules, and laws is analyzed. As a result, for the RMN ship design process, several touching references related to human factors have been identified. These references are based on the choice to implement it or not, even if some are prescriptive, and some are mandatory, making the publication is at different levels of enforcement. In ensuring the consistent implementation of human factors, regulators and authorities need to take stricter steps against all processes involved in designing and building such ships

Suhaila Ismail, Mohd Nazri Ismail, Arniyati Ahmad and Mohammad Adib Khairuddin. *Exploring the Information Security Culture within Industrial Control Systems Organisations: Expert Reviews*

Abstract: The security of computer-automated systems governing the Critical Infrastructures sectors: Industrial Control Systems (ICS) and Supervisory Control and Data Acquisition (SCADA) systems represent a significant challenge in the present time. These systems have seen numerous examples of malicious attacks including Stuxnet and Night Dragon attacks. Unknown cyber-security threat vectors towards the critical industrial processes and systems seem to be unavoidable due to the new technology trends such as Mobility, BYO devices, cloud storage and big data. Recognising and rapidly responding to these attacks could be possible by strengthening the information security implementations within organisations. This research paper proposes a holistic approach to cultivate awareness within the organisations by instilling an information security culture. This includes assessing the information security compliance, awareness, measures, policies and government as adapted from the Information Security Culture Model (Alnatheer 2014). The information is gathered through semi-structured interviews of eight IDS and SCADA systems experts and were then analysed deductively. This paper presents the results of this research study analysis to evaluate the current information security culture within SCADA organisations.

Afiqah Azahari, Syarifah Bahiyah Rahayu, Arniyati Ahmad and Siti Hajar Zainal Rashid. *Defensive Programming: Developing a Web Application with a Secure Coding Practices*

Abstract: Web Application Development has shown progressive and rapid growth using various techniques. Nonetheless, web application security is a major component in web development that is often overlooked or not properly focused on. Due to ad hoc existence and poor code written, most available web applications are vulnerable and desirable target for the attackers. To alleviate this issue, the use of defensive programming basic technique allows the developers to develop secure applications. Defensive programming includes validate output and correctly manages error messages. This avoids the misuse of snippets and builds the program in a consistent way despite unpredictable inputs. The purpose of this paper is twofold. Firstly, this paper discussed the development of a web application program using PHP as server-side scripting exploiting defensive programming techniques to overwhelm web application vulnerabilities. Secondly, this paper examined common vulnerabilities of web application risks refer to Open Web Application Security Project (OWASP, 2020) to validate the effectiveness of defensive programming technique. The work presented in this paper shall be a fundamental guideline for the development of secure web-based applications.

Mohd Shukri Mohd Yusop, Mohd Norsyarizad Razali, Nazirah Md Tarmizi, Mohd Najib Abdul Ghani Yolhamid, Azzeri Naeim and Ainul Husna Abdul Rahman. *Acoustic Approach for Determining Seabed Substrates Distribution at Mandi Darah Island*

Abstract: The need of marine spatial information especially the distribution of seabed substrates and habitat mapping is very important for managing and conserving marine ecosystem. Therefore, this study has employed an acoustic approach using RoxAnn Acoustic Ground Discrimination System to investigate the distribution of seabed substrate surrounding Mandi Darah Island. The acoustic data recorded by AGDS capable of translating the echo signals into hardness and roughness indices which explains unique characteristic for each seabed type recorded. 15 types of substrates have been identified and classified ranging from sandy to gravel. From the surveys carried out, the acoustic method had demonstrated its capability to be a better alternative compared to the conventional method of direct observation techniques in terms of cost and time spent especially in large scale survey. The seabed substrates dataset from this study could also be used as a baseline information for a better managing and conserving marine ecosystem.

Mohd Hafiz Faizal Mohamad Kamil, Ira Syazwani Zainal Abidin, Najlaa Yahya and Azir Rezha Norizan. *Development of Virtual Reality Technology: Home Tour for Real Estate Purchase Decision Making*

Abstract: Virtual reality (VR) is a technology; derived with various potential benefits for many aspects of rehabilitation assessment, treatment, and research. The emphasis of VR is computational rather than experiential. To preview Quill Residence's houses, a buyer had to go to the showroom that only located at two places in Kuala Lumpur. The showroom houses often lack depth and a sense of reality and take quite a bit of imagination to realize what the effect will look like in the real environment. There is less interactive virtual reality walkthrough application from a local company for real estate marketing purpose. Therefore, this research aims 1) to identify the home interior design criteria for real estate purchase decision through an interactive virtual reality walkthrough application developed, and 2) to evaluate the effectiveness of interactive virtual reality walkthrough application for the real estate purchase decision. This research focuses on the interior design of Quill Residences and helps the real estate's buyer to identify the home interior design criteria for the purchase decision. The current study has employed the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model representing a home tour immersive framework (HTIF) in creating practical resources to support VR application development. Results has shown that 90% of respondents believe that interactive virtual reality walkthrough application is effective in assisting the real estate's purchase decision. Hence, this study will contribute to the effectiveness of interactive virtual reality walkthrough application for real estate purchase decision.

Shahidatul Arfah Baharudin and Adidah Lajis. *Deep Learning Approach for Cognitive Competency assessment in Computer Programming Subject*

Abstract: This research examines the competencies that are essential for an educator or instructor to evaluate the student based on automated assessments. The competencies are the skills, knowledge, abilities and also behaviour that is required to perform the task given, whether in learning or working environment. The importance of this research is to help student which has a problem to learn Computer Programming Language Course to identify their flaw using Deep Learning Approach. Thus, the Higher institution having problem by assessing the student based on the assessment of competency level because the current practice, they still using manual assessment to mark the assessment. In order to measure intelligence, it is necessary to identify the cluster of abilities or skills in the type of which intelligence expresses itself. These skills and abilities cluster is called a "competency". Then, the automated assessment is the problem-solving which interact between student and the computer without any other human interference. This review is aimed at gathering different techniques that have been used. In addition, the results of the review reveals the main gap that exists within the context of the considered areas which contributes to our main research topic of interest.

Ahmmad Musha, Abdullah Al Mamun, Rehnuma Hasnat, Anik Tahabilder, Rumana Sultana and Fahad Alsofyani. *A remotely accessible robot system to help military operation against terrorism using artificial intelligence*

Abstract: Terrorist groups and their activities are increasing day by day not only in Bangladesh but also all over the world. They use suicidal attempts and assassinate innocent lives. To lessen their terrorist acts, military experts need a better communication system, knowledge about militants' region, and unlawful activities, which is an extremely dangerous and time-consuming task for military soldiers. In this paper, a remotely accessible military robot system has been proposed to execute the life-threatening task. This system is based on the network socket, YOLOv4 (You Only Look Once) deep learning model with Deep SORT (Simple Online and Realtime Tracking with a Deep Association Metric) and with the help of OpenCV, face-recognition, SpeechRecognition python library. An android app and a python app are used to control the robot and monitor the militants' activity from a secured place. This proposed system can stream live video, detect and track objects or persons, face recognition to identify authorized or unauthorized persons, and communicate with the militants or hostages via speech in real-time. It is helpful to the military armed forces for creating a plan before conducting the military operation and for taking action against their violent acts in proper time. Authors believe that this research will play a significant role in the military operation to fight against terrorism and save innocent lives.

Rehnuma Hasnat, Abdullah Al Mamun, Ahmmad Musha, Anik Tahabilder, Rumana Sultana and Fahad Alsofyani. *A Review on Heart Diseases Prediction Using Artificial Intelligence*

Abstract: Heart disease is one of the major concerns of this modern world. The insufficiency of the expertise has made this issue a bigger concern. To diagnose heart diseases at an early stage is possible with Artificial Intelligence (AI) techniques, which will lessen the needed number of expertise. This paper has initially discussed different kinds of heart diseases and the importance of detecting them early. Two popular diagnosis systems for collecting data and their working function are then highlighted. Different types of Model architectures in the corresponding field are described. Firstly, the Support Vector Machine (SVM) machine learning algorithm is described and secondly, popular deep learning model architecture such as Convolutional Neural Network (CNN), Recurrent Neural Network (RNN), Long Short-Term Memory (LSTM), etc. are highlighted to detect heart disease. Finally, discussion, comparison and future work are described. This article aims to clarify AI's present and future state in medical technology to predict heart diseases.

Suraya Yaacob and Sharida Mohd Yusof. *Analytical Reasoning Framework for Visual Analytics Representation*

Abstract: Analytical Reasoning is the foundation of visual analytics, assisted via interactive and dynamic visualization representation. The main concern of visual analytics is the analytics process itself. The output of visual analytics needs to be represented and comprehend by end-users and decision makers. Hence, it is important to facilitate the human mental space during the analysis process by embedding the analytical reasoning during interacting with visual analytics representation. This paper is aimed to introduce and describe the essential analytical reasoning features within visual visualization representation. The framework describes analytical reasoning features from three parts of visual analytics representation which are higher level structure, interconnection, lower-level structure. For higher level structure, we proposed the features of big picture, analytics goal and insights through storytelling to ensure the analytics output becomes knowledge and applicable to facilitate the business decision. For interconnection, the features of trend, pattern and relevancy induce a relationship between higher and lower-level structures. Finally, analytical reasoning features for lower-level structure are quite straightforward which are benchmarking, ranking, decluttering, clueing and filtering. These features can be directly applied in the visualization techniques. It is hoped that this framework could help to shed some light in terms of understanding certain features that can induce analytical reasoning and improving the end-users and decision makers when interacting visual analytics representation with underlying statistical algorithms, deal with noisiness inherent in real world data and apply their domain knowledge to reason about the outcomes of the analysis.

Nurasyiqin Mohd Radzi, Norshaheeda Mohd Noor, Zulhilmi Muhammad Nasir and Clement Tang Qi Zhi. *Assessment of E-Hailing Services as an Urban Mobility Option in KL City Center*

Abstract: E-hailing business has become one of the essential transportation services that offer personal mobility to the customer. The existence of e-hailing services in the market has given an option to people's mobility, especially to those without vehicle ownership. Although the urban city of Kuala Lumpur (KL) has been facilitated with several public transportations such as bus, train and taxis, the availability of personal mobility offered by the e-hailing business is undeniable attractive and competitive in the market. With e-hailing service, urban resident has a better option of having personal travelling experience without having to share it with other passengers. E-hailing business enables customers to get their service by doing a simple process on a dedicated platform installed in a customer's personal mobile phone. The customer will be linked to the e-hailing operator and get their ride easily just by doing a few taps on the mobile application available on their personal mobile phone. The major aim of the paper is to identify the determining factors that lead the user to choose e-hailing service as an urban mobility choice in the urban city of Kuala Lumpur. The methodology of the study is using quantitative research and data collection has been done using questionnaire distribution. The study measures the customer's satisfaction with e-hailing services in KL through five factors in an independent variable: tangible, security, price, reliability and application. The study has been taken in the city centre of Kuala Lumpur with 200 respondents participating in the survey in which the major contribution of respondents comes from users age below 30. The result found that the price has become the major influencing variable that affects users' satisfaction with e-hailing services. The findings provide benefit to the service provider mainly on identifying the most influencing factor on the passenger's satisfaction and for the service improvement in future.

Wei Siang Hoh, Bi-Lynn Ong, Si-Kee Yoon and R Badlishah Ahmad. *A Comprehensive Performance Evaluation of MIPv6 and PMIPv6 Mobility Management Protocols in Wireless Mesh Network*

Abstract: The number of mobile devices increase exponentially, and it became the trends and needs for human. With the increasing demands for new data and real-time services, there is a need for wireless Internet networks that can support different traffic characteristics and different Quality of Service (QoS) guarantees. All these Internet network mobile device services are supported by the mobility management protocols. Having known the importance of mobility management protocol, in this paper, we compare the performance of the MIPv6 and PMIPv6 mobility management protocols in Wireless Mesh Network (WMN) environment. We identify and analyze the MIPv6 and PMIPv6 mobility management protocol's characteristic and performance indicator. Then, we compare and enhance the performance of MIPv6 and PMIPv6 mobility management protocols in terms of latency, throughput and packet loss ratio. Through the conducted numerical results, we summarize the considerations of performance for MIPv6 and PMIPv6 mobility management protocols in WMN environment.

Muhammad Syakir Ismail, Dr. Arniyati Ahmad, Suhaila Ismail and Dr. Nurhafizah Moziyana Mohd Yusop. *A Review on Unmanned Aerial Vehicle (UAV) Threats Assessments*

Abstract: The threat of Unmanned Aerial Vehicle (UAV) attacks abroad is increasing, and it may even happen in Malaysia in the future. Over time, the development of UAV technology has grown rapidly. This proves that UAV attacks are very easy to be carried out by the enemy, and it is difficult to repel such attacks. Therefore, this study is an initial preparation to avoid any potential threats to Malaysia by UAV or drones in the future. The Malaysian force is required to prevent the enemy's UAV from entering Malaysia's airspace. Since its independence, Malaysia has never faced the threat of UAV attacks but with the rising number of UAV attacks internationally, the military must have the ability to defend and destroy the aerial threat source when national security is threatened. The more complex the UAV technology, the greater the threat it may pose. This paper aims to disclose the threats related to physical UAV attacks. This study aims to explore the UAV technologies, their capabilities and usage. This paper also addresses the current UAV threats and UAV threats assessments methodologies. This study establishes a critical literature review in which reflect on the process of modeling and analyzing UAV threats through attack defense trees in the next research.

Handrini Ardiyanti, Ilya Revianti and Udi Rusadi. *WHO'S BEHIND PAPUA SEPARATISM MOVEMENT?*

Abstract: Papua separatist movement is still moving on social media. The research method used in this research is SNA method this case study examines who's behind Papua separatism movement on twitter. Using techniques from Social Network Analysis, this case study examines who's behind Papua separatism movement and whether the virality of hashtags is aided by the use of automation or coordination between Twitter users, whether the virality of hashtags is aided by the use of automation or coordination between Twitter users and tracking what hashtags are used to campaign for the Papua separatism movement. We found that the Papua separatist movement was coordinated in several clusters. The majority of accounts that are actors in the Papua separatism movement are outside Papua. They are @amiryogi, @ coolrunning2009, @nicolasnicola22, @vanessafiji, @katamoci, @geomaticsfeed. Account @VeronicaKoman is a highly valued organizational resource for The Free Papua Movement.

Fatimah Abdul Hamid, Mohamad Naufal Mohamad Saad and Norshakila Haris. *Comparison of Fractal Dimension and Wavelet Transform Methods in Classification of Stress State from EEG Signals*

Abstract: Stress is a significant issue in everyday life that affects both physical and mental health. There are different approaches to stress classification. This research examines the implementation of fractal dimension (FD) method as one of feature for classification of stress state using brain signals. In consequence, the comparison between FD and wavelet transform has been conducted using electroencephalogram (EEG) signals recorded during the Stroop Colour Word Test (SCWT). The comparison results show that the FD is better in the classification of the stress state. The highest F score has been obtained using FD with quadratic support vector machine (SVM) – 83.03% in the comparison between baseline session and different stress state. In addition, FD with medium Gaussian SVM has the highest F1 score for comparison between various stress state.

Raja Mohd Tariqi Raja Lope Ahmad, Wan Azlan Wan Hassan, Suziyanti Marjudi, Azhar Hamid and Mohd Fahmi Mohamad Amran. *Halal Industry 4.0 Model for SMEs*

Abstract: The commitment between SMEs and stakeholders is very important in coordinating interrelated Halal business functions. However, Halal SMEs players have major obstacles in integrating information that can support their stakeholders with operational and functional requirements. Moreover, there are scanty supply chain comprehensive models that can engage Halal SMEs participants for digitalization. Therefore, the purpose of this study is to construct the Halal Industry 4.0 Model (HI4.0) in order to improve business engagement among SMEs within the Halal Industry 4.0 supply chain. Analysis and evaluation were conducted based on ap-plication of previous research work by using systematic literature review and thematic analysis to identify the elements and processes involved in the implementation of Halal related businesses. The outcomes show that HI4.0 consists of five main components which are Halal Knowledge Repository, Halal Supply Chain Management Systems Implementation Framework, Halal Smart Application Ecosystem, Halal Infrastructure, and Halal Integrity Assurance System. The findings contribute to the Halal Industry 4.0 framework development in which the model can benefit stakeholders' engagement with governing bodies, consumers and SMEs.

Belinda Balraj and Nanthini Chandra Kanthan. *Viewer's Perception on the Portrayal and Evolution of Women in Selected Horror Movies*

Abstract: Women in horror movies have been facing a significant gender stereotyping. In the media industry, the media manager often portrays women in negative ways and as having more adverse qualities than men. These constant negative portrayals provide viewers with specific ways of acting towards women, thus affecting communication and perception. studied the differences in the portrayal of women in the selected horror movies. This research investigated the viewers' perception of stereotyping in horror movies. The data was then tabulated using Google Form. The results showed that viewers are aware of the gender biasness and stereotypes that is present in horror movies. The findings show that the respondents are merely going by the flow of what media puts forward which can be related back to the agenda set by the media.

Omar Zakaria. *PROPOSING BASIC INFORMATION SECURITY TASKS AS PART OF JOB SPECIFICATION FOR EMPLOYEES WITHIN AN ORGANISATION*

Abstract: When an organisation had been attacked by external party like virus attacks, the organisation took longer time to recover from the attack. This was because only technical employees were performing the recovery procedures on each infected host. Therefore, this paper is proposing basic information security tasks as a part of each employee's job specification. By proposing this, it can help on prevention measure so that each host will be monitored closely by each employee by performing basic security tasks on their job routine. This is to change the perception of "they are responsible" to "all of us are responsible" in order to protect each host from insider or even outsider incidents. By changing this perception, it can help to speed up the process of inspection, protection, detection, reaction and reflection processes in terms of preserving the confidentiality, integrity and availability of the host.

Suresh Thanakodi, Muhamad Lazim Talib, Syarifah Aishah Syed Ali, Norshahriah Abdul Wahab, Amalina Farhi Ahmad, Norshaheeda Mohd Noor, Muhammad Izham Ahmad Zahari and Mohd Arif Ahmad. *A Study on Development of a Light Weight Smart Life Buoy Prototype (LWSLB)*

Abstract: Life Buoy is also known as a life preserver is a very crucial safety tool on board any marine ships. The most common and conventional lifesaver is operated manually to save people from drowning, yet this method poses a risk for the victim and rescuer. Hence, with the help of current technology, a smart lifebuoy has been developed whereby the rescuer just operates the lifebuoy using a remote control. Yet, the existing smart life buoy system found to be heavy and hard to be operated especially for women, children, and other abilities people. This paper focuses on the development of a lightweight smart life buoy system and its' characterizations. Arduino Uno R3, Arduino Nano, DC motor 775, Transmitter, and Receiver kit were the main components used in the development of the lightweight smart life buoy system (LWSLB). The developed LWSLB system was tested at the National Defence University of Malaysia's swimming pool due to Covid-19 lockdown and data such as speed, range of remote connection, and battery endurance were obtained. This paper also presents the comparison between the developed LWSLB and a commercially available smart lifebuoy (Brand X). It is found out that the developed LWSLB weighs just 3.5kg overall compared to Brand X which weighs 13.75kg. However, in terms of speed, Brand X proves to be faster at 4.17m/s compared to LWSLB which exhibits speed at 1.25m/s. In conclusion, a lightweight smart life buoy system has been developed and characterized successfully. However, there is still room for improvement for LWSLB especially for the motor power and battery endurance.

Nurazean Maarop, Azizah Abdul Manaf, Asmaa Munshi, Ganthan Narayana Samy, Pritheega Magalingam and Doris Wong Hooi Ten. *The Development of Information Security Management System Success Measurement Indicator*

Abstract: Information security has become a key element in promoting digital transformation. The concern is even more vital in organizations as they need to ensure that their information systems are properly secured. The Information Security Management System (ISMS) has therefore been established to offer many benefits in improving overall organizational security performance, efficiency and information management. However, there is still a limited indicator to be applied when assessing the success of ISMS implementation in the organization. In most of the literature in the field of information systems, the success or failure of technology implementation is fundamentally measured by the indicator known as the net benefit of the individual or organization. The study presents the development of ISMS success measurement indicators based on the pilot study procedures and statistical analysis. The overall objective is to identify and validate the items that are relevant to the success of ISMS implementation. This study occupies an acceptable pilot sample size of thirty-eight respondents by means of quantitative surveys distributed among employees of Malaysian government agencies who have experienced ISMS implementation and application. As a result, the study proposes ISMS Success Model Measurement Indicators consisting of thirty-five measurement items.

Nur Hasniza Illias, Nurazean Maarop, Noor Hafizah Hassan, Ganthan Narayana Samy, Pritheega Magalingam and Doris Wong Hooi Ten. ***A Prelim Investigation on Social Media Usage as Risk Communicational Platform for Flood Management in the context of Flash Flood in Klang Valley***

Abstract: Social media (SM) could be a prominent medium for risk communication in flood management where it could provide instant real-time communication and improve collaboration within various stakeholders and community. Since the early 1990's, Kuala Lumpur (KL) and it's residing neighborhood areas, which generally referred as Klang Valley has been subjected to flooding. Notwithstanding many actions has been taken at all levels by possible stakeholders, the issue of flooding in Klang Valley remains as clear as it was to date. As it is important for them to stay connected and engaged within one another throughout the whole process, this study explores the current communication arrangement in the flood management system which should involve various parties; the government, agencies, local authorities and the community. Hence, this study aims to explore the usage of SM as risk communication tool that could be used to maintain engagement within all the participants. Subsequently, elements derived from previous literatures were used in this qualitative study entailing semi-structured interviews involving three key informants to unveil the actual issues of risk communication and barriers for SM usage in flood management in the context of Klang Valley, Malaysia. Likert scale questionnaires were used to identify the usability of several SM platforms in flood management. The interviews and surveys provide an elementary view of the current issues of flooding and the actual implementation and acceptance of SM as risk communication tool for flood management in Klang Valley. Our main finding highlighted that there is lack of cooperation within various parties involved in flood management where collaboration and communication are said to be the key components that could engage these people. SM has been used as a risk communication tool in the current flood management. However, the usage is still not fully utilized and there is still inadequate reliance on the tool itself. The government's SM sites are getting more active and the most useable platforms being used are Facebook and Twitter. The medias have been used by the authorities to share and disseminate flood information to the public as well as to be informed by the public regarding flood issues in a particular area. Results obtained from this study can be used for further work related to flood management in Klang Valley and Malaysia.

Hasmeda Erna Che Hamid, Noor Afiza Mat Razali, Mohd Nazri Ismail and Mohammad Adib Khairuddin. *A REVIEW PAPER: FORECASTING OF FLOOD IN MALAYSIA USING MACHINE LEARNING*

Abstract: Floods in Malaysia are described as flash floods and monsoon floods by the Department of Irrigation and Drainage (DID). Forecasting is a specialized form of predictive analysis used to predict future trends or behavior from existing data. Weather forecasting predicts the weather in the future from current data circumstances. As flood forecasting models become more accurate, however, their capacity to accurately predict flooding decreased as the forecast continues. Therefore, to understand the different techniques used to forecast flood levels, a systematic review of the literature was conducted. This paper's main objective is to examine the most common variable used to forecast floods, utilizing the systematic review technique. From the main focus, we can identify the research questions, such as the most commonly used prediction method and its accuracy. In the end, two of the most common variables used for flood forecasting are rainfall and water level. This study's data can help others forecast floods using standard variables that yield the best accuracy possible.

Abdullah Al Mamun, Em Poh Ping and Md Jakir Hossen. *A Deep Learning Instance Segmentation Approach for Lane Marking Detection*

Abstract: Nowadays, many advanced automotive features have been incorporated in Advanced Driver Assistance Systems (ADAS). Lane Marking Detection (LMD) is one of the most significant and preliminary features of ADAS. Previous studies have the limitation on different environmental conditions, which lead to a less accurate and efficient system of LMD. Therefore, this research article proposed a semantic segmentation approach based on U-net to detect the LMD under distinguishing environmental effects like a variant of lights, obstacle, shadow, and curve lanes. The proposed model is emphasized on the simple encode-decode U-Net framework incorporated with VGG16 architecture that has been trained by using the inequity and cross-entropy losses to obtain more accurate segmentation result of lane markings. DBSCAN interfaced the predicted instance and binary lane pixels. The system was trained and tested on a publicly available Tusimple dataset that consists of 3.6K and 2.7k image frames of different environmental conditions for training and testing respectfully. The algorithm achieved 96.4% accuracy, 95.25% F1 score, 96.01% precision, and 92.89% recall, which outstripped some of the state-of-the-art research. This research outcome leads to a significant impact on the LMD research arena.

Mohd Rizal Mohd Isa, Mohammad Adib Khairuddin, Mohd Azmi Mustafa, Mohd Nazri Ismail, Mohd Afizi Mohd Shukran and Aznida Abu Bakar Sajak. *SIEM Network Behaviour Monitoring Framework for Campus Network Infrastructure*

Abstract: One major problem faced by network users is an attack on the security of the network especially if the network is vulnerable due to poor security policies. Network security is largely an exercise to protect not only the network itself but most importantly, the data. This exercise involves hardware and software technology. Secure and effective access management falls under the purview of network security. It focuses on threats both internally and externally, with the intention to protect and stop the threats from entering or spreading into the network. To address and ensuring a secure network, this requires a complex combination of hardware devices, such as routers, firewalls with anti-malware software applications. Almost all agencies and companies use highly skilled information security analysts to implement security plans and regularly monitor the effectiveness of this plan. This research paper presents a significant and flexible way of providing centralized log analysis between network devices. Moreover, this paper proposes a novel method in compiling and displaying all potential threats and alert information in a single dashboard.

Myzan Noor, Kamarulzaman Ithnain and Mohd Hafiz Faizal Mohamad Kamil. Public Social Announcement (PSA) 2D Animation Video on Virus Infection Disease

Abstract: Middle East Respiratory Syndrome (MERS), Severe Acute Respiratory Syndrome (SARS), and Novel Coronavirus-19 (COVID19) are some of the mundane infectious diseases, caused by viruses. Viruses are very small and tiny constructed from genetic material, within protein layers. This paper explains how 2D animated PSA (Public Social Announcement) could be done as a source of dissemination of information in an attractive presentation to provide awareness of the viral diseases to the general public. The objective of this research is to disseminates knowledge, clearer about the cause of viral diseases interestingly with audio and video narrator 2D Animated PSA added with color, infographics and suitable theme and mood. Hence, the research goal is to get viewers' understanding of how diseases could be avoided and prevented. This PSA has narration of 2D Animation on the awareness of the diseases, the problems around our society with preventive actions to be taken in avoiding the viruses from infected. The methodology of this PSA is ADDIE Model of Multimedia Instructional Design in analyzing, design, development and evaluation before the last phase of implementing the PSA online to the user. In summary, this PSA will be a source of educational material related to VID (Viral infectious diseases) to many others, i.e.: general public, young teens and children.

Ida Aryanie Bahrudin, Alias Masek, Zuraida Ibrahim, Juliana Mohamed and Muhamad Hanif Jofri. ***A Review on the Evolvement of Computational Thinking in Malaysia***

Abstract: Having computational thinking (CT) skills are becoming more critical as computers, algorithms and data become pervasive. This study examines the growing field of CT in education pertaining to its definitions and interventions for improvements. Identifying suitable interventions for applications in Malaysia is of particular importance as CT skills have just been incorporated into the Malaysian Secondary Education curriculum early 2017. Based on the literature reviewed, four CT core skills have been identified namely, decomposition, abstraction, algorithm design, and generalization. Intervention studies focusing on computational practices and computational perspectives are identified to be appropriate for improving CT skills of Malaysian students.

Dr. Abdul Rauf Ridzuan, Hanita Hassan and Shafinar Ismail. ***Determinants of Childhood Vaccine Rejection Among Malaysian Parents***

Abstract: Vaccine rejection remains an issue of consideration that is determined by the thought, attitude and opinion of a person. This study aims to identify the determinants of the vaccine and vaccination specific problems that influence the rejection of vaccines among Malaysian parents. The quantitative survey research, selected by purposive sampling techniques, was conducted on 392 parents or guardians. Distribution of questions to respondents is via email and social media. This research used descriptive statistics and the data was analyzed by using SPSS. From the finding, a total of 98.2% of respondents sent their kids to be immunized. Researchers also found majority of respondents agree that lack of knowledge (M= 3.38) is the key determinants of the rejection of vaccines, followed by level of education (M= 3.11) and halal issue (M=2.97).

Dr. Abdul Rauf Ridzuan, Nur Fazlinda Saidin, Zaizul Ab Rahman, Noordin Othman, Arif Zulkarnain and Amia Luthfia. ***THE LEVEL OF STRESS AMONG DIFFERENT HOUSEHOLD INCOME DURING COVID-19***

Abstract: Coronavirus disease (COVID-19) is a contagious disease caused by a new virus. The most infected people with COVID-19 virus will usually experience light to medium respiratory illness and recover without getting special treatment. Since the cases become more serious, Malaysian's government announced a Movement Control Order to beat coronavirus in order to protect health systems in the country. However, there are unintended consequences caused by a coronavirus. Besides, it brings different stress including physical and mental health risks when the virus is spreading across the world. The main of this study is to examine the level of stress among different household income during COVID-19. Researchers used the quantitative method and the google form survey has been hand out to all social media' platform. In sampling, researchers have pointed out from Raosoft Sample Size Calculator. The total number of respondents is 191. It is proved that Malaysians are having stress during this pandemic where it's M=3.58 which is very high. Furthermore, the result shows that people from B40 category household income are having more stress during COVID-19 pandemic compared to the other category of household income which is M40 and T20.

Norlida Nasaruddin, Monarusnita Abu Bakar and Siti Noraihan Sheikh Ahmad. *ViSA as the virtual UniKL-RCMP Students' Character Building Programme*

Abstract: ViSA which stands for Virtual Students' Activities was the alternative activities conducted online in UniKL Royal College of Medicine (UniKL-RCMP) as to replace the normal face-to-face activities due to the pandemic Covid-19 Movement Control Order. In UniKL, all students' activities are the students' characters building programme to fulfil the six critical domains of student development, namely, Spiritual, Physical, Intellectual, Career, Emotional and Social aspects of the individual students or short formed as SPICES. Throughout the two-week time provided, 14 online activities; three for the Spiritual domain, two for the Physical domain, two for the Intellectual domain, two for the Career domain, three for the Emotional domain and finally, two for the Social domain had successfully been organized and conducted. Posters were created and disseminated as to promote the whole program and each scheduled activity. The poster was also meant to provide the online platform app session code. At the end of each activity done, participants were required to click a provided link to an online form as to record their participations for their GHOCS point claim later. As a result, this programme was a success, as a total of almost 2K students participated in the scheduled activities.

Dr Abdul Rauf Ridzuan, Ummi Hazwani Abdullah, Hanita Hassan, Zaizul Ab Rahman, Noordin Othman, Arif Zulkarnain and Amia Luthfia. *Online Shopping Acceptance between Gender Amid COVID-19 Pandemic*

Abstract: Internet advancement and technological sophistication play integral parts in driving online shopping. This method is widely used all over the world and has become the latest trend regardless of age. It was put into the limelight sure to individuals no longer need to visit a physical store for purchases and sales as the world today is moving fast and forward. Even though the world is still recuperating from the COVID-19 pandemic where the number of cases was put into heights every day, online shopping remains the public choice for monthly shopping. How great a revolution is, online shopping is not all roses, there have been issues such as security and guarantee problem, quality issue, and logistics. This study aims to identify the level of online shopping acceptance between male and female during the COVID-19 pandemic. This study involved 335 respondents with a different demographic background. The quantitative research method was used in this research where questionnaires were distributed via purposive sampling technique. The data were collected through the Statistical Package of Social Science (SPSS) Version 23. Generally, this research proved that Malaysians acceptance towards online shopping during COVID-19 pandemic is high (M=3.14). The findings also showed that female respondents were more likely to accept online shopping. However, there is no significant difference between male and female.

Dr Abdul Rauf Ridzuan, Hasnina Jeffuzan, Hanita Hassan, Zaizul Ab Rahman, Noordin Othman, Arif Zulkarnain and Amia Luthfia. *Social Media Platforms in Promoting Effectiveness Campaign During COVID-19*

Abstract: Today, social media is playing a vital role in providing information to the public through various platforms such as traditional media and also digital media. In March 2020, the government has announced the Movement Control Order (MCO) due to the outbreak of COVID-19 in Malaysia. The COVID-19 pandemic shows that the world is at great risk of pandemic disease disturbances. However, social media as a medium for promoting the campaign during COVID-19 also has its weaknesses which challenge identifying promoted content. The social media sites became one of the essential sources of information and platform for dangerous rumour-mongering. Thus, it also under severe pressure to regulate misinformation about the disease which leads people in the wrong direction. Therefore, the purpose of this research is to identify which social media platforms are more effective towards effectiveness campaign during COVID-19. The researcher used quantitative surveys and distributed multiple people on all social media sites. In sampling,researchers referred to Roasoft Sample Size Calculator (2004). The total number of respondents is 162. The findings of this research showed that the level of social media for promoting an effective campaign during COVID-19 was very high (M=3.44). Furthermore, based on ANOVA analysis, Twitter was the most effective way of promoting a campaign followed by Instagram and Facebook.

Haris Iskandar Mohd Abdullah, Zul-Azri Ibrahim, Fiza Abdul Rahim, Saiful Amin Sharul Nizam and Hafizuddin Shahril Fadzli. *Digital Forensics Investigation Procedures of Smart Grid Environment*

Abstract: The digital forensics procedure is vital in an investigation because digital evidence is fragile. Several digital forensic challenges have been discussed, such as lack of standard operating procedures, technology advancement, anti-forensic, and many more. This paper proposes a digital forensic procedure to guide investigators in conducting a digital forensic investigation, especially in a smart grid environment. We also discussed several suitable tools and techniques in digital forensic investigation to solve the problem or challenges. We have found several well-known malwares that designed to attack Industrial Control System, such as Stuxnet. The threat of a cyberattack on the smart grid continues with similar malware related to Stuxnet. This study will discuss two examples of cyber-attacks and simulate the attack to guide forensic investigators using the proposed digital forensic procedure. Examples of attacks are Distributed Denial of Service and False Data Injection attacks. The paper presents an appropriate methodology and relevant forensic tools to ensure the evidence's integrity during collection and analysis to be used as legal evidence in court

Saiful Amin Sharul Nizam, Zul-Azri Ibrahim, Fiza Abdul Rahim, Hafiz Shahril Fadzli and Haris Iskandar Mohd Abdullah. ***Analysis on Digital Evidence for Tracing FDIA on IoT Environment***

Abstract: False Data Injection Attack (FDIA) is an attack that can compromises devices in Advanced Metering Infrastructure (AMI) where an attacker be able to perform data falsification on the meter consumption generated from end-user's smart meter to misled the real power consumption. Due to the rapid development of the Internet, cyber attackers are keen on exploiting domains such as finance, metering system, defence, healthcare, governance, etc. It is a necessity nowadays for greater awareness and better ways to counter such attacks in these domains. This paper aims to study and the impact of FDIA in AMI by performing data analysis from network traffic logs to identify digital forensic traces. An AMI testbed was design and developed to produce the FDIA logs. Experimental results show that forensic traces can be found from the evidence logs collected through forensic analysis are sufficient to confirm the attack. Moreover, we have produced a table of attributes for evidence collection when performing forensic investigation FDIA in AMI.

Rina Md Anwar and Fiza Abdul Rahim. ***A Review on Bystanders Terminologies in Cyberbullying***

Abstract: Most of the communication today takes place online, thereby reflecting a significant part of our lives. Commuting from offline to online contact causes many challenges, misunderstandings, and differences, not knowing how words are interpreted in various terminologies. In terms of individuals virtually harming another individual-bully-victim scenario when online communication goes wrong, there are always witnesses or bystanders who engage passively and do not take action. An upstander is a person who participates in online aggression and acts, opposes any unfair or intolerant acts, and intervenes on behalf of someone who is attacked or bullied. While there is growing research on programs to address bullying, few studies focused on witness terminologies in cyberbullying. Our study aims to deeper understand the terminologies used in existing studies related to bystander behavior in cyberbullying. A systematic literature review approach was used using three databases. A total of 220 articles were extracted using a predefined search string. A specific criterion was applied to the extracted articles. A total of 99 articles were selected for further analysis. Based on the review, the bystander terminologies can be divided into Neutral, Positive and Negative.